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MAKING OF DEUS EX MANKIND DIVIDED

WIE EIDOS-MONTRÉAL DAS LEGENDÄRE ROLLENSPIEL WIEDERBELEBT HAT

PROGRAMMING CASE STUDY
WIE SICH FLASH-SPIELE SCHNELL IN HTML5 ÜBERSETZEN LASSEN

MEDIENANALYSE
WIE ENTWICKLER BEI EUROPÄISCHEN JOURNALISTEN PUNKTEN KÖNNEN

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SO FEIERT FABRAZ MIT VERRÜCKTEN SPIELEN UND PROJEKTEN ERFOLGE

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EINE BRANCHE IN DER KRISE!?

Geradezu turbulent verliefen die vergangenen beiden Monate, zumindest für die deutsche Spieleindustrie. Dort gaben sich Erfolg und Euphorie sowie Enttäuschung und Rückschritt binnen kürzester Zeit die Klinke in die Hand. Durften aufstrebende Newcomer wie Alteingesessene im Zuge des Deutschen Entwicklerpreises eben noch die Muskeln spielen lassen und sich für eine breite Palette qualitativ großartiger Neuerscheinungen auf die Schulter klopfen, erfährt die gesamte Branche seitens der Politik im selben Atemzug einen massiven Dämpfer. So legte etwa der Bundestag auf Empfehlung des Haushaltsausschusses fest, die Preisgelder für den Deutschen Computerspielepreis 2017 einzufrieren. Um den sinnbildlichen Schlag in die Nieren abzurunden, wurde zudem eine finanzielle Beteiligung seitens der Bundesverbände BIU und GAME in Höhe von 50 Prozent festgesetzt. Förderung sieht anders aus, zumal immer noch Auszahlungen diverser Preisgelder aus dem Jahre 2016 ausstehen. Zu Recht sind alle Betroffenen enttäuscht und die Frage angebracht: Was braucht es denn, um der Spielebranche in Deutschland das Gehör und damit Unternehmen die Förderung zu verschaffen, die sie verdienen? Was muss geschehen, um auch den letzten Zweiflern zu verdeutlichen, welches Potenzial die Gaming-Industrie abseits des reinen Unterhaltungswerts mit sich bringt? An der Qualität deutscher Games wird es kaum liegen – man schaue da nur in Richtung Mimimi Productions als eines von vielen Studios, die mit Shadow Tactics sowohl auf nationaler als auch internationaler Ebene derzeit Traumwertungen abräumen.

Der Neue stellt sich vor

Auch der Making Games steht, wie Sie sicherlich bereits wissen, Veränderung bevor, wenn auch primär hinter den Kulissen. Sollten Sie sich also gewundert haben, wessen Antlitz nun die Spalte rechts dieser Zeilen ziert: Mein Name ist Nico Balletta, bisher Redakteur der Formate PC Games MMORE und buffed.de, seit rund neun Jahren für die Computec Media GmbH tätig und begeisterter Gamer seit frühester Kindheit und damit seit rund drei Jahrzehnten. Im Zuge der Umstrukturierung innerhalb der Making Games wird mir ab dem 01. April 2017 – nein, das ist kein Scherz – die Ehre zuteil, in die Fußstapfen meines künftigen Vorgängers Sebastian Weber zu treten und als Managing Editor von der »anderen Seite« der Branche zu berichten. Eine unwahrscheinlich große Herausforderung, der ich mit Spannung und Euphorie, aber zugegebenermaßen auch einer nicht zu unterschätzenden Prise Nervosität entgegenblicke. Mein Dank gebührt daher allen Verantwortlichen, die mir den Transfer seit dem ersten Tag mit Rat und Tat erleichtern und stets ein offenes Ohr für meine zahlreichen Fragen haben. Rein symbolisch passt unsere aktuelle Titelstory wie die Faust aufs Auge: Auch Eidos-Montréal kennen sich mit der verantwortungsvollen Übernahme großer Marken aus und bereichern die letzte Ausgabe dieses Jahres mit einem grandiosen und allumfassenden Making-of zum SciFi-Knaller Deus Ex: Mankind Divided. In diesem Sinne verabschieden wir uns schon einmal von 2016 und wünschen Ihnen erholsame Feiertage, einen guten Rutsch und natürlich:

Viel Spaß mit der aktuellen Ausgabe!

das Team von Making Games

Dirk Gooding
ist Chefredakteur vom Making Games Magazin.

Nico Balletta
ist Managing Editor vom Making Games Magazin.

»Die vergangenen beiden Monate verliefen turbulent für die deutsche Spieleindustrie.«

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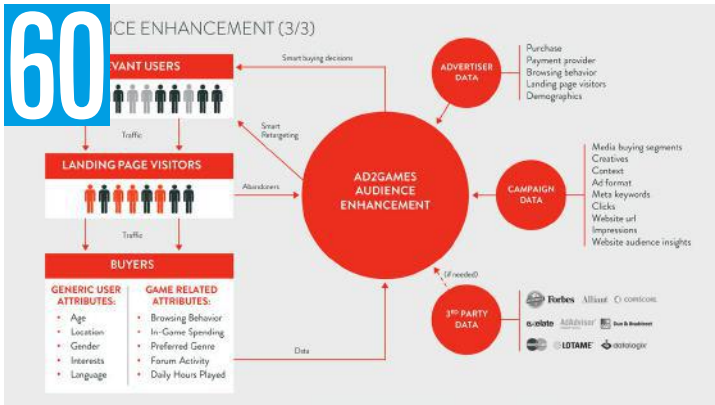

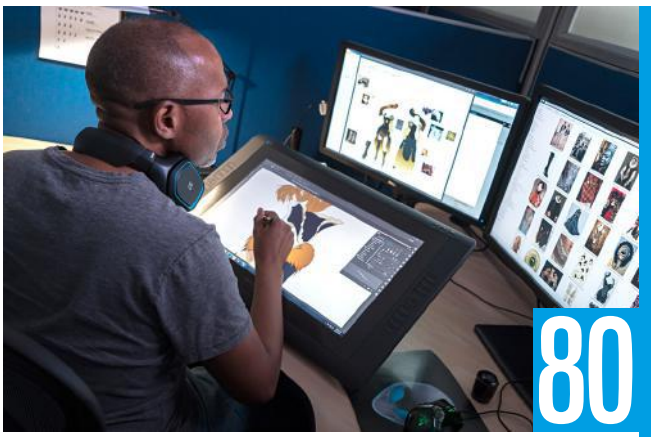

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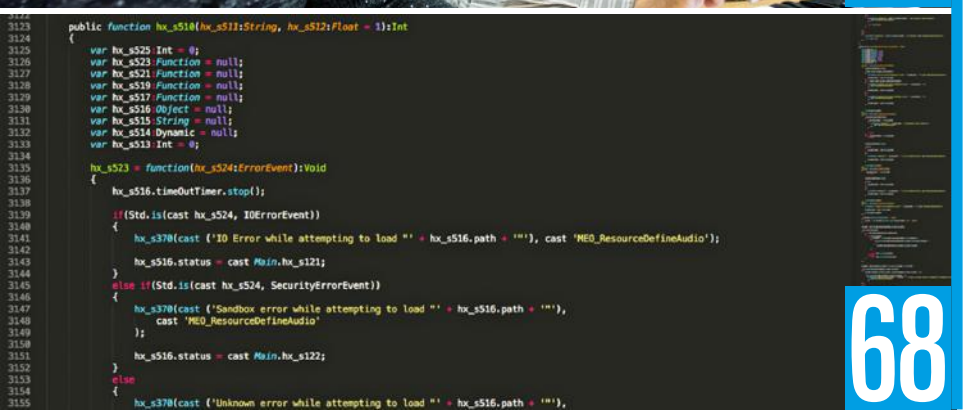

```
public function hx_s510(hx_s511:String, hx_s512:Float = 1):Int
{
    var hx_s525:Int = 0;
    var hx_s523:Function = null;
    var hx_s521:Function = null;
    var hx_s519:Function = null;
    var hx_s517:Function = null;
    var hx_s516:Object = null;
    var hx_s515:String = null;
    var hx_s514:Dynamic = null;
    var hx_s513:Int = 0;

    hx_s523 = function(hx_s524:ErrorEvent):Void
    {
        hx_s516.timeOutTimer.stop();

        if(Std.is(cast hx_s524, IOErrorEvent))
        {
            hx_s370(cast ('IO Error while attempting to load "' + hx_s516.path + '"'), cast 'MEO_ResourceDefineAudio');

            hx_s516.status = cast Main.hx_s121;
        }
        else if(Std.is(cast hx_s524, SecurityErrorEvent))
        {
            hx_s370(cast ('Sandbox error while attempting to load "' + hx_s516.path + '"'),
                cast 'MEO_ResourceDefineAudio'
            );

            hx_s516.status = cast Main.hx_s122;
        }
        else
        {
            hx_s370(cast ('Unknown error while attempting to load "' + hx_s516.path + '"'),
```


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Die Branche im Überblick

Das Strategiespiel Shadow Tactics bekam drei Auszeichnungen.

Skyhill wurde als bestes Mobile Game prämiert.

Portal Knights von keen games ist das beste Online-Spiel.

Das Adventure Silence überzeugte die Jury u.a. grafisch.

The Climb von Crytek begeisterte mit toller VR-Technik.

Die Tour von Poki und Band war die beste Marketing-Idee 2016.

DEUTSCHER ENTWICKLERPREIS 2016

Am 07. Dezember war es kurz vor Weihnachten traditionell wieder soweit und der Deutsche Entwicklerpreis wurde in Köln verliehen. Vor allem Daedalic Entertainment konnte sich an dem Abend freuen. Fünf Trophäen durften die Hamburger mit nach Hause nehmen, dazu kamen noch vier weitere für Mimimi Productions und ihr Strategiespiel Shadow Tactics, das von Daedalic vertrieben wird.

Das Mitte November veröffentlichte Adventure Silence, eine Daedalic-Eigenproduktion, räumte den Preis für den besten Sound, die beste Grafik und die beste Story ab. Zudem gestand die Expertenjury dem Team rund um Carsten Fichtelmann auch die beste Marketing-Kampagne und den WTF des Jahres zu. Sowohl die Deponia Doomsday Tour, bei der Jan Müller-Michaelis, genannt Poki, mit seiner Band in Hamburg, Berlin, Köln und Düsseldorf die Lieder aus dem Spielesoundtrack live vortrug, waren ebenso kreativ wie der Covermount-Coup mit ComputerBild Spiele. Dabei hatte Daedalic kurzer Hand die Neuerscheinung Deponia Doomsday Mitte des Jahres zur Erstveröffentlichung als Vollversion dem Heft beigelegt. Ein gewagter Schritt, der sich aber wohl ausgezahlt hat.

Das junge Münchner Team Mimimi Productions, das bereits für Last Tinker etliche Preise abgeräumt hat, ließ sicherlich ebenfalls die Sektkorken knallen. Das Commandos-Revival Shadow Tactics wurde nicht nur als bestes deutsches Spiel ausgezeichnet, sondern darf sich auch mit den Pokalen für das beste Game Design und für das beste PC-/Konsolenspiel schmücken. Zudem konnte sich Mimimi Productions als bestes Studio gegen InnoGames, keen games, Sproing und GIANTS Software behaupten.

Abseits der reinen Entwicklerleistungen, wurden auch wieder zwei Einzelpersonen gewürdigt. Ingo Horn, PR-Manager bei Wargaming, erhielt die Hall-of-Fame-Auszeichnung, sicherlich nicht zuletzt aufgrund der Gründung von Gaming Aid. Der Verein versucht, Bedürftigen in Notsituationen zur Seite zu stehen. Auf der anderen Seite wurde Stefan Marcinek mit dem Preis für soziales Engagement gewürdigt. Seit seinem Weggang vom Publisher Kalypso Media hat Marcinek unter anderem die kostenlose deutschsprachige Entwicklerkonferenz GermanDevDays ins Leben gerufen, sich verstärkt im GAME Bundesverband engagiert (dessen Vorstand er inzwischen ist) und sogar Teile seiner neuen Büroräume ebenfalls kostenfrei an ein junges Entwicklerteam vergeben.

Sebastian Weber

Die Sieger

- **Bestes Deutsches Spiel**
  Shadow Tactics: Blades of the Shogun (Mimimi Productions)
- **Bestes PC-/Konsolenspiel**
  Shadow Tactics: Blades of the Shogun (Mimimi Productions)
- **Bestes Mobile Games**
  SKYHILL (Mandragora)
- **Bestes Online Game**
  Portal Knights (keen games)
- **Bestes Indie Game**
  The Lion's Song (Mi'pu'mi Games)
- **Bestes Game Design**
  Shadow Tactics: Blades of the Shogun (Mimimi Productions)
- **Beste Story**
  Silence (Daedalic Entertainment)
- **Beste Grafik**
  Silence (Daedalic Entertainment)
- **Bester Sound**
  Silence (Daedalic Entertainment)
- **Beste technische Leistung**
  The Climb (Crytek)
- **Beste VR/AR Experience**
  The Climb (Crytek)
- **Innovationspreis**
  AirConsole (N-Dream)
- **WTF des Jahres**
  Covermount einer Vollpreisnovität (Daedalic Entertainment)
- **Ubisoft Blue Byte Newcomer Award**
  Cubiverse (Ludamus)
- **Hall of Fame – Lebensleistung**
  Ingo Horn
- **Sonderpreis für soziales Engagement**
  Stefan Marcinek
- **Bester Publisher**
  Tivola Publishing
- **Bestes Studio – präsentiert von BIU.Dev**
  Mimimi Productions
- **Beste PR-Einzelaktion**
  Safety First! – personalisierte Spezialversionen (Headup Games)
- **Beste Marketing-Kampagne**
  Deponia Doomsday Tour (Daedalic Entertainment)

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TOOLS

Keine guten Werkzeuge – keine guten Spiele! Experten aus der Branche sagen ihre Meinung zu aktuellen Programm-Updates sowie neuen Tools und verraten ihre persönlichen Software-Geheimtipps.

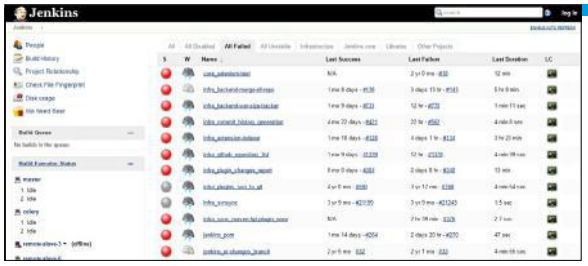
ONETASTIC WWW.GETONETASTIC.COM

Dennis Bulawa
ist Live Game Manager
bei Blue Byte, a Ubisoft Studio.

Onetastic as an add-in for OneNote that adds a huge amount of useful comfort features.

This add-in for OneNote 2010/2013/2016, the free version as well as the Office 365 version, allows you to add a huge amount of useful comfort features to OneNote. Be it formatting your texts with editable custom styles, as you know it from MS Word. Optimizing tables, by allowing column sorting, cell formatting, or using Excel like functions. Or easing up on routine actions, such as search-and-replace text, generating a table of contents, cropping images, extracting text from images, or creating a desktop shortcut to a specific page. Just to name a few. All the activated features will be properly displayed in the menu ribbon. With the possibility to create your very own macros – for which the page provides extensive documentation and tutorials – and an active community, there is very likely a solution for most of your issues with OneNote. Although it is not officially distributed by Microsoft, it has been created and is maintained by Omer Atay, a software developer at the Microsoft OneNote team. A downside might be that it only runs on Windows systems. And if you want to download and run a lot of macros, you might need to opt for the Pro version ($15/year), as the trial version only allows a specific amount of macro executions. Beside that all other features are included in the free version.

JENKINS WWW.JENKINS.IO



Jenkins is an open source automation server, which enables the user to reliably build, test, and deploy games as well as websites.

Josep Prat
ist Associate Technical Director
bei GameDuell.

Jenkins is an open source automation server, which enables us to reliably build, test, and deploy our games as well as websites. Thanks to it, at GameDuell, we can successfully implement Continuous Integration for our products, making it easy for all developers to add new features in a safe manner. With over a thousand plugins, one of the main advantages of Jenkins is its extensibility. Ours is configured to build projects based on Maven (Java), npm (JavaScript) and DuellTool (our very own build tool for our Haxe cross-platform development framework). Jenkins is also very versatile, and can do more than just building, and in our case, we also use it to successfully deploy our applications. The wide adoption of Jenkins made it one of the de facto standards in our industry.

CANVA WWW.CANVA.COM

Gunnar Lott
ist Geschäftsführer
von Visibility Communications.

Canva ist ein Online-Tool, mit dem auch Laien schnell (ziemlich) professionelle Grafiken erstellen können.

Canva ist ein Tool, mit dem Laien rasch Grafiken erstellen können. Es ist online, kostenlos und hat eine komfortable, sehr simple Oberfläche. Der eigentliche Witz aber ist die Tatsache, dass es massig Vorlagen enthält, von fertigen Layouts über typografische Elemente und Icons bis zu Stockfotografien. Manche davon kosten einen Dollar, aber ein beträchtlicher Teil ist frei erhältlich. Ernsthafte grafische Arbeiten muss man damit nicht machen, aber Bilder für Facebook-Posts, Folien für Präsentationen, Infografiken für Blogs, Header für Newsletter, Mockups und derlei Dinge sind damit in Minuten erstellt. Es gibt auch eine Team-Version, bei der Mitarbeiter gemeinsam arbeiten können. Ich benutze das quasi täglich.

FOKUS GAME

IM WESTEN NICHTS NEUES?

Timm Walter erklärt, weshalb Electronic Arts ein Beispiel dafür sein kann, wie eine ungewohnte Strategie erfolgreiche Spiele hervorbringt.

Timm Walter
ist Leiter der Geschäftsstelle des GAME Bundesverband der deutschen Games-Branche e.V.

Timm Walter ist Politikwissenschaftler und kümmert sich als Leiter der Geschäftsstelle um das operative Geschäft des GAME. Vor seiner Zeit im Verband konnte er weitreichende Erfahrungen in der Politik und der Medienbranche sowie im Vereinswesen sammeln.

So sicher wie das Amen in der Kirche, so sicher können Gamer rund um den Globus damit rechnen, im jährlichen Vorweihnachtsgeschäft mit der üblichen Shooter-Kost der beiden großen Platzhirsche Electronic Arts und Activision versorgt zu werden. Und ebenso sicher können diese beiden Firmen davon ausgehen, mit ihren Titeln der »Battlefield«- und »Call of Duty«-Reihen einen stattlichen Gewinn einzufahren. Selbst wenn das Interesse auf Grund von Bugs oder der stiefmütterlichen Behandlung einer bestimmten Spielerschicht in den letzten Jahren merklich rückläufig war.

Die Spieler wissen einfach was sie bekommen: Solide, unterhaltsame FPS-Action im »Modern War«-Setting. Doch dann war er da, der erste Battlefield-1-Trailer. Begleitet von einer geschickten Marketingoffensive trauten sich Electronic Arts und das hauseigene Studio Dice, abseits der gewohnten Pfade zu wandeln und versprach, die Spieler in noch nie dagewesene Schlachten des Ersten Weltkrieges zu führen. Die Reaktionen auf den Trailer (60 Millionen YouTube-Views) zeigen, dass dieser Plan aufging. Ebenso wie die Reaktion auf den zeitnah veröffentlichten Trailer zu Call of Duty: Infinite Warfare, welcher innerhalb kürzester Zeit den Negativrekord von fast 3 Millionen Down-Votes aufstellte. Das verdeutlicht, dass die Spieler nach der Ankündigung von Battlefield 1 offenbar etwas Anderes erwartet hatte.

Das Gewohnte durchbrechen

Dieser Trend setzte sich nach Release fort und zwar nicht nur bei den Verkaufszahlen. Während Call of Duty ein solider Shooter ist, der mehr vom Gewohnten bietet, durchbricht Battlefield vor allem mit seinem Setting und der außergewöhnlichen Kampagne das gewohnte Schema F, ohne dabei jedoch die eigene DNS zu vergessen. In kurzen War-Stories werden packend inszenierte, vor allem aber für das FPS-Genre überraschend emotional erzählte Einzelschicksale präsentiert, die den Spieler weniger als Supersoldaten dastehen lassen, sondern vielmehr als einen von vielen, der das Schicksal des Krieges erlebt. Klar, Battlefield soll in erster Linie Unterhaltung sein, schafft es aber trotzdem, das Grauen des Krieges angemessen zu transportieren. Allein die Prolog-Mission sucht im Genre ihres Gleichen und sollte von jedem Gamer einmal selbst erlebt werden.

Battlefield ist und bleibt jedoch in erster Linie eine Multiplayererfahrung und auch hier versucht man, sich merklich vom Bekannten abzuheben. Sei es durch die Behemoth-Einheiten oder den großartigen Operations-Modus, beides Dinge, die das gewohnte Konzept um frische Ideen bereichern. Und für all jene, denen das nicht genug Innovation ist, hat EA – quasi zwischen Call of Duty und Battlefield – mit Titanfall 2 einfach eine weitere, innovative Games-Perle veröffentlicht, die ebenfalls nicht nur durch eine packende Story, sondern vor allem durch extrem spaßiges und innovatives Mehrspielerkonzept überzeugt. Und zwar abseits des bisher bekannten und von den beiden Konkurrenten dominierten Marktes.

Doch warum erzähle ich das? Warum mutiert diese Kolumne zu einem Produktreview und zu einer Lobeshymne auf Battlefield 1? Die Antwort ist so simpel wie offensichtlich: Wenn es ein Big Player wie Electronic Arts schafft, den gewohnten Rhythmus zu durchbrechen und etwas Neues zu wagen – gleich zweimal in einem Monat – dann sollte dies der Branche ein Weckruf sein. Natürlich hantiert EA mit anderen Budgets als die meisten deutschen Studios; aber mit einer der größten IPs neue Wege zu beschreiten, muss einfach respektiert werden. Und so bleibt eigentlich nur zu sagen: Wagt auch ihr etwas! Schaut über den Tellerrand, richtet euren Blick weg von den ewig gleichen Simulatoren, Pixel-Games, Sidescrollern und Indie-Adventures und probiert einmal etwas Ungewohntes. Wenn Electronic Arts das kann, dann sollte das bei euch doch erst recht klappen, habt ihr doch augenscheinlich mehr kreative Freiheiten und weniger starre Vorgaben! Wagt etwas und die Kunden werden es euch danken.

Timm Walter

Mit Battlefield 1 und Titanfall 2 hat Electronic Arts gezeigt, dass Blockbuster auch abseits der ausgetreten Genre-Pfade möglich sind und vor allem die Spieler begeistern.

MODERN TIMES GROUP BETEILIGT SICH AN INNOGAMES

Mitte Oktober wurde bekannt, dass sich der schwedische Medienkonzern Modern Times Group mit rund 91 Millionen Euro am Hamburger Browser- und Mobile-Games-Studio InnoGames beteiligt, das sind rund 35 Prozent der Firmenanteile. Zusätzlich sicherte sich der Konzern die Option, weitere 16 Prozent übernehmen zu können. InnoGames möchte die Finanzspritze nun dafür aufwenden, sich komplett auf den Mobile-Games-Markt zu konzentrieren, mehrere Titel sind hier bereits vorgesehen. Neue Browser-Games sind daher für die Zukunft nicht geplant, bestehende sollen aber weiterlaufen. Außerdem besteht die Hoffnung, mit dem neuen Partner nun mehr und vor allem auch internationaleres Publikum ansprechen zu können. Die Modern Times Group betreibt etliche Free- und Pay-TV-Sender in Bulgarien, Dänemark, Russland, Schweden und Norwegen sowie den Online-Video-Dienst Zoomin.TV, der rund zwei Milliarden Abrufe pro Monat generiert – somit kann InnoGames auf eine enorme Reichweite zurückgreifen.

Drei Fragen an ...

Hendrik Klindworth ist CEO von InnoGames.

Making Games Welche Auswirkungen hat die MGT-Beteiligung auf InnoGames?
Hendrik Klindworth Unser neuer Investor MTG hat 35 Prozent des Unternehmens übernommen. Diese setzen sich aus den Anteilen unseres ehemaligen Investors Eight Roads Ventures und Gründeranteilen zusammen. Als Eight Roads seine Anteile nach sechs Jahren verkaufen wollte, haben wir im Management die Suche nach einem neuen Partner selbst in die Hand genommen. Wichtig war uns dabei immer, unsere operative Freiheit zu behalten und einen Investor zu finden, der unsere Leidenschaft für Spiele teilt. MTG will sich im Bereich Games stärker aufstellen und war insbesondere durch die Erfolge mit Forge of Empires und die geplanten Mobile-only Titel von uns überzeugt. MTG wiederum passt sehr gut zu uns, da sie unsere Werte teilen und unseren Gründergeist unterstützen. Die Partnerschaft bietet spannende Möglichkeiten für beide Parteien. Gemeinsam mit MTG werden wir unsere bewährte Strategie fortführen und weiterhin nachhaltig wachsen.

Making Games Wie kam es zum Entschluss, sich künftig auf Mobile zu konzentrieren?
Hendrik Klindworth Unsere Community hat schon recht früh nach mobilen Versionen der bestehenden Browsergames gefragt. Insbesondere in stark kompetitiven Spielen wie Grepolis und Tribal Wars können Spieler immer auf dem Laufenden bleiben, indem sie Push Notifications bei Angriffen erhalten. Bereits 2013 konnten wir dann mit den Mobile-Versionen von Forge of Empires den Durchbruch in diesem Segment erzielen. Auch wenn wir uns auf die Entwicklung der neuen Mobile-only Titel konzentrieren, spielt der Browser weiterhin eine wichtige Rolle für uns. Der Umsatz und die Zahl der aktiven Spieler auf dieser Plattform zeigen, dass weiterhin ein großer Bedarf besteht – wir wachsen nach wie vor auf beiden Plattformen. Im Durchschnitt findet etwa die Hälfte der Neuregistrierungen auf Mobile statt, aber die Verteilung variiert von Markt zu Markt und ist abhängig vom Spiel.

Making Games Wieso ist Wachstum und ein größeres Publikum durch die Beteiligung von MTG leichter zu verwirklichen als zuvor?
Hendrik Klindworth Bereits bevor MTG eingestiegen ist, waren wir international sehr gut aufgestellt. Unsere Kernmärkte sind weiterhin Europa und die USA. Seit unserer Gründung in 2007 waren wir jedes Jahr profitabel und wollen weiterhin gesund und nachhaltig wachsen. MTGs Mediennetzwerk kann uns dabei unterstützen, unsere Spiele einem noch größeren Publikum zur Verfügung zu stellen.

Eventkalender

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Online-Eventkalender mit Suchfunktion und Veranstaltungsinfos

JANUAR 2017

International CES
Ort Las Vegas
Termin 05. bis 08. Januar 2017
Thema Messe
Kosten 660 bis 1.415 Euro
Homepage www.ces.tech

Mobile Games Forum London
Ort London, Queen Elizabeth II Centre
Termin 17. bis 18. Januar 2017
Thema Konferenz
Kosten 2.337 Euro
Homepage www.globalmgf.com/london

Global Game Jam
Ort Ohne fixen Veranstaltungsort
Termin 20. bis 22. Januar 2017
Thema Game Jam
Kosten kostenfrei
Homepage www.globalgamejam.org

PAX South
Ort San Antonio, Gonzalez Convention Center
Termin 27. bis 29. Januar 2017
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EA verlangt Kennzeichnung von Sponsored-Videos

Als erster großer Publisher hat Electronic Arts Mitte November bekannt gegeben, wie er künftig von sogenannten Influencer verlangt, dass Videos gekennzeichnet werden. Zwei Varianten wurden dabei enthüllt, sobald EA bei YouTube- oder Twitch-Videos, Twitter, Facebook, Snapchat und so weiter involviert war: die Hashtags bzw. Watermark-Einblendungen »supported by EA« und »advertisement«. Ersteres soll künftig immer dann ausgewiesen werden, wenn YouTuber und Co. auf ein Event eingeladen werden, Geld für ein Tutorial-Video bekommen oder ähnliches, wobei EA aber keinerlei Einfluss auf den Inhalt und die Art der Berichterstattung nimmt. Das Werbeschild dagegen soll ausweisen, dass der Beitrag eben nicht unabhängig erstellt wurde, sondern, dass es sich um schnöde Reklame handelt, für die der Influencer sein Gesicht hergibt und eine entsprechende Entlohnung bekommt. So will Electronic Arts sicherstellen, dass größtmögliche Transparenz für den Zuschauer, Zuhörer oder Leser entsteht. Das Vorgehen ist sicherlich auch eine Reaktion auf den Vorfall im Sommer, als bekannt wurde, dass Warner Bros. hohe Summen an PewDiePie überwiesen haben soll, damit dieser Let's Plays mit positivem Grundtenor zu ihren Spielen erstellt.

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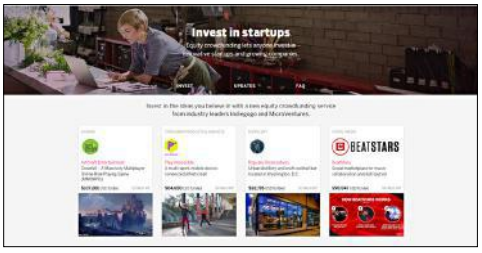
Chris Taylor verlässt Wargaming, um eigenes Studio zu gründen

Um Chris Taylor war es seit 2013 ruhig geworden, als er sein Studio Gas Powered Games an den »World of Tanks«-Entwickler Wargaming verkauft und die Leitung über dessen neues Büro in Seattle übernommen hat. Ende November jedoch überraschte eine Meldung: Chris Taylor verlässt das Unternehmen, um zunächst ein paar Monate mit seiner Familie Urlaub zu machen und dann sein eigenes Studio zu gründen. In seiner Zeit bei Wargaming hatte Taylor an einem bislang nicht angekündigten Projekt gearbeitet. Gerüchten zufolge könnte es sich um einen neuen Teil der »Total Annihilation«-Reihe handeln. Im Gespräch mit der Website GamesBeat kurz nach seinem Weggang von Wargaming wollte Taylor allerdings weder kommentieren, weshalb er die Firma verlassen hat noch an was er gearbeitet hat. Auch was er mit seinem eigenen Studio vor hat, bleibt bislang ungewiss. Chris Taylor hat sich in seiner Karriere, die in den 1980er Jahren begann, vor allem einen Namen mit Spielen wie Total Annihilation, Dungeon Siege und Supreme Commander gemacht.

Indiegogo ermöglicht Crowdfunding über Investitionen



Seit Mitte November erlaubt die Crowdfunding-Plattform Indiegogo, dass Nutzer nicht mehr nur Geld spenden und als Gegenleistung das fertige Produkt bekommen und ähnliches, sondern, dass sie Beträge ab 100 Dollar in die Unternehmen investieren. Ähnlich wie bei der Crowdfunding-Seite Fig.co beteiligen sich die Backer so am Projekt und bekommen je nach Erfolg einen entsprechenden Anteil später wieder ausgezahlt. Allerdings sind derartige Kampagnen auf Indiegogo mit vergleichsweise hohen Kosten verbunden: Während Indiegogo von einer regulären Crowdfunding-Kampagne einen Anteil von 5 Prozent verlangt, werden beim Start einer Investitionsrunde rund 7.000 Dollar an Gebühren fällig – so berichtet die New York Times. Zudem verlangt Indiegogo einen Anteil von 7 Prozent am letztendlichen Umsatz und sichert sich selbst einen 2-prozentigen Anteil am finanzierten Projekt. Die Investoren werden ebenfalls zur Kasse gebeten und müssen eine Gebühr von 7 Dollar oder 2 Prozent der Investitionssumme zahlen. Die erste Games-Kampagne, die diese neue Option nutzt, ist das Online-Rollenspiel Crowfall.

Microsoft steigt ins VR-Geschäft ein

Microsoft bringt im Frühjahr 2017 zusammen mit seinen Partnern HP, Dell, Lenovo, Asus und Acer neue VR-Headsets auf den Markt. Diese sollen für nur 299 Dollar zu haben sein, so zumindest der Einstiegspreis. Zusammen mit dem ebenfalls für Anfang 2017 geplanten »Windows 10 Creators Update« sollen die Geräte sogenanntes Mixed Reality ermöglichen, also eine Mischung aus der Realität und computergenerierten Grafiken darstellen. Zudem versprach Microsoft, dass die VR-Brillen weder eine komplizierte Einrichtung noch viel Platz oder gar ein separates Zimmer benötigen würden, sondern wohl sehr einsteigerfreundlich konzipiert sind. Außerdem sollen sich die Hardwareanforderungen an Laptops und PCs im »bezahlbaren Rahmen« bewegen – eine schwammige Aussage, aber dennoch eine Kampfansage: Denn damit spielte der Konzern ganz offensichtlich an die Konkurrenten Oculus Rift und HTC Vive an, die aktuell eher auf Hardcore-Nutzer ausgerichtet sind, da sie zum einen einen deutlich höheren Preis ausweisen als auch einen potenten PC und Einarbeitungszeit verlangen.

Wargaming eröffnet Free2Play-Label und kooperiert mit Sega

Mitte November hat »World of Tanks«-Entwickler Wargaming die Gründung eines Free2Play-Labels namens Wargaming Alliance bekannt gegeben. Diese Publishing-Abteilung soll anderen Publishern aber auch Entwicklern helfen, ihre Projekte im stark umkämpften Free2Play-Markt zu platzieren und zu vermarkten, immerhin hat Wargaming Zugriff auf eine Spielerschaft von rund 100 Millionen registrierten Nutzern. Die erste Partnerschaft, die unter dem Banner von Wargaming Alliance steht, ist mit Sega und Entwickler Creative Assembly. Zusammen möchten die drei Firmen Total War: Arena veröffentlichen, das die grundsätzlichen Elemente der bekannten Strategie-Reihe in die Welt der Free2Play-Spiele transportiert und dabei strategische 10-gegen-10-Spieler-Kämpfe bietet. Ein Veröffentlichungsdatum hat Wargaming bisher noch nicht genannt, allerdings plant das Unternehmen Total War: Arena weltweit, außer in China, auf den Markt zu bringen.

Ubisoft eröffnet Studio in Belgrad

Mitte November hat Ubisoft die Eröffnung eines neuen Studios in der serbischen Hauptstadt Belgrad bekannt gegeben. Das Büro untersteht der Leitung von Sebastien Delen, der auch den Kiev-Standort führt, und besteht aktuell aus 15 Mitarbeitern – allesamt hauptsächlich Programmierer. Ubisoft Belgrade soll zunächst mit anderen Studios an der PC-Version von Tom Clancy's Ghost Recon Wildlands arbeiten und nach und nach auf 40 Mitarbeiter anwachsen. Künftig ist vor allem die Kooperation mit Paris und Kiev geplant. Serbien ist für Ubisoft laut Delen vor allem deshalb interessant, da es dort viele IT-Experten auf dem Arbeitsmarkt gibt, die einige Schlüsselqualifikationen mitbringen, die einen neuen Standort lohnenswert machen. Außerdem arbeite man eng mit Universitäten zusammen.

Nintendo enthüllt neue Konsole namens Switch

Seit einigen Monaten hatte es in der Gerüchteküche rund um Nintendos neue Konsole gebrodelt und Ende Oktober war es schließlich soweit: Das Switch genannte Gerät wurde entfüllt. Dabei handelt es sich um einen Mix aus Handheld und stationärer Konsole, der es den Spielern erlauben soll, zu Hause auf dem Sofa mit dem großen TV-Gerät zu spielen oder aber das Tablet-artige Innere mitzunehmen, um unterwegs in die virtuellen Welten abzutauchen. Allzu viele Details hat Nintendo allerdings nicht verraten, so ist lediglich bekannt, dass Switch im März 2017 in den Handel kommen soll. Ein Preis wurde jedoch nicht genannt. Auch die technischen Spezifikationen blieben erst einmal geheim. Im Ankündigungsvideo waren allerdings einige Spiele wie NBA 2K17, ein Mario Kart und Skyrim zu sehen, außerdem scheinen alle großen Publisher und zudem jede Menge Entwickler bereits an Titeln für die neue Konsole zu arbeiten.

Links

Wie 2K Irrational Games ruiniert hat.
www.bit.ly/MG_IrrationalGames

Wie Shigeru Miyamoto und Yuji Horii 1989 Game Design angingen.
www.bit.ly/MG_Miyamoto

Parodie über NPCs in Videospielen und ihr seltsames Verhalten.
www.bit.ly/MG_NPCMAN

Die Geschichte der Virtual Reality, von 1958 bis zur Gegenwart.
www.bit.ly/MG_VRHistory

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@TIMOFLEGEND

Amazing idea for airports: stools. To put around phone-charging kiosks. There are 6 sad travelers sitting on the floor around me who agree.

Tim Schafer, Gründer von Double Fine Productions

@LOCUST9

There are few fallacies that are more damaging than the idea that talent is going to get you further than hard work. Hard work IS talent.

David Goldfarb, Game Director von PayDay 2

@DANIELVAVRA

Cool bug. When you stun a person and are arrested while you carry him, you are both sent to prison and when he wakes up, you have a buddy :)

Daniel Vávra, Creative Director der Warhorse Studios

@GRUMPYGAMER

I don't care who buys twitter, all I ask is that they completely destroy it so I can stop wasting so much time and get my life back.

Ron Gilbert, Erfinder von Monkey Island

@MEGGANPEZ

The GDC content team has spent the last 5 minutes trying to explain the difference between a wrap & a burrito. It must be lunchtime.

Meggan Scavio, General Manager der GDC

@IBOGOST

»What did people do before they made card games on Kickstarter, daddy?«, »They blogged.«, »What's blogging?«, »Kickstarter without videos.«

Ian Bogost, Autor und Game Designer

@GEORGEB3DR

»Western games won't sell«, »Zombie games won't sell«. This was common game publisher response a decade ago. So clueless in general. Awful.

George Broussard, Erfinder von Duke Nukem

@BENJAMINCOUSINS

That Nintendo Switch commercial did a great job of showing nearly all of the ways that I don't play games.

Ben Cousins, Mitgründer und CEO von The Outsiders

@ALLOWE

Getting married is like going out to dinner: you make a choice and then, when you see what your friend got, wish you'd gotten that instead.

Al Lowe, Erfinder von Leisure Suit Larry

JOIN THE CONVERSATION

HOW EIDOS-MONTRÉAL BROUGHT THE DEUS EX DNA TO 2016

The game director of Deus Ex: Human Revolution and Deus Ex: Mankind Divided reveals how the team's journey began ten years ago, detailing how they brought Deus Ex back to life, and how the game has evolved since then.

Jean-François Dugas is Executive Games Director at Eidos-Montréal.

Jean-François Dugas joined Eidos-Montréal in 2007 after working for Ubisoft for about 10 years. He was Lead Game Designer on several projects for the N64, PS1, and Xbox, focusing on establishing the vision, creating design documents, and tweaking gameplay. During his time as Creative Director on projects for the Xbox and Xbox 360, he focused on establishing the vision, then on working with designers, artists, and programmers to ensure that the vision for each game was fully realized.
@Jeffachoo

Seeing a cult classic like Deus Ex turn into the franchise it now is, with Human Revolution and its sequel Mankind Divided standing beside it, is incredible. Back in 2007, legend had it that making a new Deus Ex game wasn't possible, especially since a few sequel attempts had either disappointed or never seen the light of day. Yet, it was in exactly this context that a handful of seasoned but virtually unknown developers like me agreed to take on the challenge when the offer came on the table.

In Spring 2007 there was only a producer, David Anfossi; an art director, Jonathan Jacques-Belletête; a game designer, François Lapikas; and myself as the game director. I remember those days vividly because we had »carte blanche« for the project, something we don't get very often, especially in big AAA studios. We had to start somewhere so to launch the project, I wrote on the plastic window glass surrounding our creative room a question that we would spend the next 4 years answering: »How do we turn a developer's game into a gamer's game?«

The blunt truth is that, at that time Deus Ex (DX) was mainly recognized by critics and game developers as a genre-defining experience, and by a small but very devoted fan base. We needed to make it something more and it was clear to us that something had to change. We didn't want to change things just for the sake of changing them, though. We wanted to modernize the experience, make it a bit flashier and more accessible, without sacrificing the game's roots.

The Journey Begins

Our first step was to go back to the source material, Deus Ex and Invisible War, to really understand where the franchise was shining and where it was struggling. I'm a strong believer in the importance of understanding the material you want to play with before thinking about transforming it. It's just fundamental logic, but often needs to be reinforced because it's very easy to be tempted by shortcuts. Especially if you're a fan of something and think you understand or know it well.

Reviving Deus Ex turned out to be a very challenging exercise because we were all big fans of the series to begin with. We all had fond memories of playing the original game when it came out in 2000, and we all had different aspects in mind that we loved. To get beyond that, we had to learn to divorce ourselves from our memories and examine the source material with a very critical eye.

We began by identifying strengths and weaknesses of the franchise which could commonly be agreed upon and were not just based on personal tastes. We then moved into defining core values of the experience: what makes Deus Ex a Deus Ex game? We ended up with a list of key words and sentences that defined what it was to us.

I think this step turned out to be very crucial, allowing us to succeed in the journey ahead. Indeed, by really distilling down the experience to primal values like »choices and consequences«, »a mix of several gameplays (i.e., combat/stealth/hacking/social)«, »worldwide conspiracies« etc., we were able to move ahead with a clear view of what the game needed to have.

It made us understand both the flavor and the global recipe. It also made us walk with confidence when it came time to play with systems. As long as we kept those high-level goals alive, we knew we'd be heading in the right direction. Understanding the flavor and recipe was key to making the old fan base feel like they were at home even as we explored various ideas to make the game more accessible. Or at least, more dynamic for a new audience unfamiliar with such deep game experiences.

It was during those early days that I decided to stray away from the classic RPG-esque management of the Player Character. In the original game, you had to heal each of your wounded body parts individually to become fully functional. Even though I liked doing this back in 2000, I felt it was detrimental to the experience we now had in mind. I wanted players to focus on their tools, their augmentations, the environment, and the challenge at hand. I felt these were more than enough things to think about, so if I could liberate their minds from the health management aspect to focus on the core experience, I'd do it. Surprisingly, even with all the core value exercises we'd done internally, I met resistance from some of my teammates – and later on, from the original fans when I went public with this design. Nevertheless, we decided to stick with the controversial direction and it turned out to be a good decision that kept the experience focus where we wanted it to be.

We also decided to go with a 3rd person cover-based system and animated augmentation sequences that unfolded in 3rd person so you could see the powers of your character in action more clearly. Our main theme was »Transhumanism« and we wanted to be sure you'd see your character as often as possible without sacrificing immersion. Adam Jensen is the embodiment of Man 2.0 and we wanted the player to experience this more directly. Switching to a 3rd person camera at key moments was our way to bring more spectacle on screen and make the game experience more dynamic, but it was never done so gratuitously. Seeing Jensen in 3rd person was always done for a reason.

These are just simple examples of how we streamlined or gave a different spin to some aspects of DX while respecting the type of game it is in the first place. There are more, but the key point I want to make is that, without our process, it would have been harder to understand the ramifications and impacts of our vision on what is expected from a DX game. It would have been harder to attract a new audience while still keeping the old fans on board.

The Human Factor

For me, developing Deus Ex: Human Revolution over the course of 4 years was a great learning experience – both as a developer and as a human being. I like to think that it came at the right time in all of the core team's careers. We were a bunch of people with a solid decade of experience in the industry, but we'd never had the chance to tackle something as ambitious as DX before.

Every step of the way, we had to learn how the game's several pillars would work together, how to make the narrative and the gameplay blend seamlessly, and, finally, how to build the

The original Deus Ex games strongly influenced the creation of Deus Ex: Human Revolution. In the end, the game was very hard to master for newer players to the franchise, as stealth, and the proper use of Adam Jensen's abilities, ended up being more effective than relying on traditional shooter gameplay.

10 years back, when the team at Eidos-Montréal initially undertook their journey of reviving the Deus Ex franchise, they determined the vital elements that a Deus Ex game must include, along with which aspects could potentially be changed, by analyzing the original games.

levels that would support it all. There was a lot of trial and error. We struggled for about 2 years before finally getting the global game recipe right and seeing a light at the end of the tunnel.

One of the things we needed to learn first was how to work together as a team. Most of the group knew each other from past projects in other companies, but most had never actually worked together – or at least, we hadn't done so in a long time. We needed to develop our own culture, our own way of working as a group, and, as the team and the studio grew, our own way of getting new people on board with our vision.

It turned out we were a passionate group that worked extremely well together. We all had very strong work ethics and rarely, if ever, wanted to settle for »good enough«. We shared similar values and constantly challenged ourselves and each other, encouraging everyone to push higher and higher. We had to adapt to each other's quirks, of course – but when you work so closely together every day, the bonds and trust are created much faster.

Dealing with the rest of the team, however, presented some interesting challenges. We in the »creative bubble« were considered to be a very demanding bunch of people, and this created friction during development. We were very hard bosses to please. I believe most people on the production floor wanted to do a great job but if we believed the work they'd done wasn't good enough, we wouldn't shy away from saying so. In return, the production team was also very vocal when they didn't agree with our direction. At times, it was hard to handle. Ultimately, trust did get earned over the course of the project, for the most part on all sides. And once the results started to show, most people understood that success could only be achieved by everyone insisting on excellence – both individually and collectively as a team.

Let's be honest, no one likes to be challenged. It's hard on the ego. But if we were to reach the standards we'd set out to achieve, we all needed to learn to accept criticism. To do this, we needed to grow as individuals, learn how to separate the criticism from ourselves, and understand that none of it was personal. I truly believe this was key to the success of the group and the project.

The Game Factor

From a game standpoint, we also had a great deal to learn. Specifically, about that game's underlying pillar – choices and consequences – and how it tied to gameplay, narrative, level design, and a million other unforeseen factors.

A lot of the choices you see in the game were crafted on paper, but it's only when you play a game that you realize what works, what doesn't, and what falls short of its ambitions. Since we'd never made a game like this before, we didn't fully realize that supporting player choices can lead to a number of unsuspected conditions. We didn't understand how the ramifications of those choices would create ripple effects that had to be tied up in coherent ways. Even the smallest choice can end up becoming a big headache to figure out. Nothing is ever easy when it comes to Deus Ex. Every little thing connects to other little or bigger things, yet you have to maintain consistency across the board in order to get the immersion right. We had to dive in and learn this the hard way.

For example, we wanted to support the player's ability to create chaos everywhere. It's part of the choice and consequence logic: if we give the player the ability to pull out a gun, he or she should be able to shoot it. And once they start shooting, the world needs to react in a credible way. Sounds simple on the surface but building all the systems – the AI, the animation, the writing, the level design needed to support this freedom of choice – is one of the biggest challenges to achieve. For us, it became a trap that was hard to escape from.

Eventually we realized that we wouldn't be able to support chaos everywhere, as we had initially intended (specifically, in LIMB clinics and Sarif HQ). We spent days and days questioning how to make it logical that a player suddenly wouldn't be able to use weapons in these environments. We even got to the point where we added turrets in both locations so players would get killed if they did anything crazy. But this didn't feel right, either. The logic was not that strong; it felt forced and very »game-y«, in addition to being hard to pull off.

After weeks of arguments, we finally realized the logic was simple and had been in our faces all along. Jensen works for Sarif Industries and LIMB clinics are his employer's business partners. Therefore, he would not condone any violence in either location. It's just not in his character. This could have been perceived as inconsistent from a design standpoint, but the narrative logic was solid enough to justify it. And when the game finally got released, players never even questioned it.

As I write this example, it feels so simple and easy to solve now. But when you're in the midst of creating the game, with all the challenges you deal with every day, suddenly nothing is ever that simple or easy. The great learning here was that we needed the rigor we had for such a title but we also needed to understand that overthinking sometimes puts us in corners that are hard to get out of. It makes our lives miserable in areas where the added value is virtually nonexistent. It's all about finding the right solution for the right challenge while maintaining overall consistency.

The Scope Factor

Here's a nice rule of thumb that every game developer should hold near and dear to their hearts: in order to cut efficiently, you needed a solid plan to begin with. We learned that lesson

To better illustrate Jensen's augmentations, and to have some spectacular scenes during gameplay, the team decided to retain a 3rd person view whenever the player used special abilities.

a few times during the course of Human Revolution. It's where our blueprint process came in.

The blueprint is to the developer what an architect's drawing is to a construction team: a plan that tells you what you're building and how you have to achieve it. For us, it was a document that described every part of the story from a gameplay perspective and vice versa. We spent roughly 2 to 3 months building all the game's narrative beats, gameplay sequences, and possible player actions on paper. Where is the player? What is he or she doing? What are the twists? What are the narrative goals? What are the choices? What are the consequences? And so on. We set everything out on paper from start to finish before even beginning production. Once that was done, we could see where the game was weaker and where it needed fine-tuning. The production team was also able to start planning and building schedules based on what was in the document.

Because of that plan, production leads were able to tell us that three distinct city hubs (Detroit, Hengsha, and Bangalore) were too much to create. We had to cut one even before production began. So, we looked at the blueprint and ultimately decided to fold the story of Bangalore into a second visit to Hengsha.

Once production got underway, we started building the game we had planned out on paper, only to hit some additional bumps on the road. New schedules revealed that the Bangalore cut wasn't enough; we still had too much on our plate. I was asked to cut another 25 percent of the game. Hengsha had been planned to have two playable levels: an upper and a lower city. The upper level was falling behind and was the weakest point of the narrative experience we had built so far. So, even though the map was fully playable from start to finish and was one of the most stunning maps we had, we ended up cutting it. Since we had our blueprint on hand and constantly kept it up-to-date, we were able to analyze all the affected narrative sequences and determine how to retrofit them into lower Hengsha.

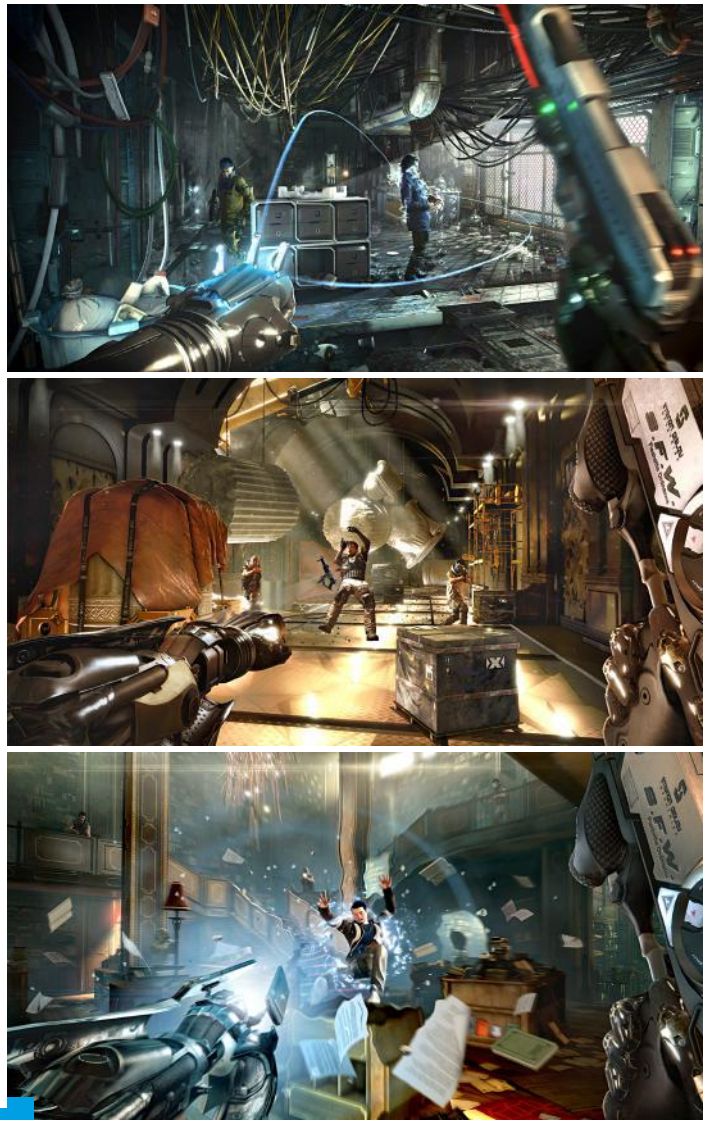
For example, during our first cut, locations that we were supposed to visit in Bangalore – like Belltower Headquarters – had been moved to Upper Hengsha. When we had to cut again and Upper Hengsha was placed on the chopping block, we couldn't fit the compound into the lower part of the city hub. So, we ended up cutting the Belltower map entirely. Pieces of storytelling developed for the map were then moved to another level, Omega Ranch.

Deciding how and what to cut was a process that took Mary DeMarle, the narrative director, and me about three weeks to complete. We were able to do it without too much pain because the blueprint showed us which pieces of storytelling weren't critical to the narrative experience, and which could be moved to other maps without damaging everything that had

been built so far. Because we had a solid plan, we were able to play with the pieces individually and always keep a good understanding of how everything worked together.

Spoiler alert: We thought we were done with cuts at this point, but a few months later we were asked to do it again. We had planned for a small compound in Utah that was supposed to help people recover from having their augmentations removed. By visiting it late in the second act, players would discover a key plot twist: Purity First, an anti-augmentation group, were hiding a terrorist training camp deep inside the facility. We looked at our story at that point in the blueprint and realized we could only cut the map, not its narrative beat, because the reveal was directly linked to Jensen's investigation. So, we found an area in Detroit's sewers where players could encounter the Purity First leader and discover the crucial plot twist during their second visit to the city.

The experience of returning to the blueprint time and time again in order to see what to cut showed us how instrumental blueprinting a game is. Especially for titles as big as Deus Ex. The return on investment is much higher than the effort you need to put in at the beginning of development in order to get there. At least, it's the way of working that we embraced as a team.



For Deus Ex: Mankind Divided, the team thought about the balancing of stealth and combat from the get go, ensuring that both ways of playing would be equally fun.

Groundhog Day

On Human Revolution, we were often saying it takes a lot of naiveté to create such an ambitious game. By the end of the project, our philosophy had changed: naiveté was no longer possible. We told ourselves that if we got the chance to make another Deus Ex, this time we'd need to have courage.

Mankind Divided was to be the 4th title in the DX franchise, and while we still wanted to retain the core values we had identified with Human Revolution, this time our goal was to bring the experience to the next level – specifically in terms of production values and accessibility. We knew that Human Revolution's game mechanics were a bit stiff, that the game balancing was punishing, and that combat wasn't perceived as a truly viable option. We also knew that, visually-speaking, the game was artistically beautiful but disappointing from a technical point-of-view. If we wanted to appeal to a broader audience, we needed to work on these aspects without compromising what had made the last game stand out in the first place.

Key to achieving our new goals for Mankind Divided would be to ensure that the team stayed somewhat the same as with Human Revolution. We managed to pull this off to some degree, but we also brought new blood in to several key positions.

In some ways, doing so made it easier to work on Mankind Divided because when team members started talking about core principles, the »old-timers« immediately understood what was meant. They recognized how things should feel, play, or look. But it also made it harder because the »new blood« often wanted to challenge the status quo. Sometimes they were right to do so, sometimes they weren't. This created some interesting dilemmas to manage but in the end, having a mix of new- and old-timers working together prevented us from becoming complacent and enabled us to bring in different ideas.

To make the game feel immediately more gratifying and in line with its fantasy, we decided to make Adam Jensen proficient right from the get-go, instead of relying on the classic route in which you have to build your character from the start. The new story showcased an Adam Jensen taking charge, fully embracing his augmented body, and assuming the role of Man 2.0. The game progression, controls, and mechanics needed to reflect this, too. If they didn't, they'd end up subverting the narrative.

The problem we faced here was two-fold: how do we present an empowered Jensen who has some new and exciting abilities,

The team knew that Human Revolution was, visually speaking, artistically beautiful. However, they were also aware that it was disappointing from a technical point-of-view, and that's something that Eidos-Montréal worked hard to improve on in Mankind Divided.

while also letting players customize the character any way they want? We solved it by building an intriguing narrative around an unexpected terror attack and subsequent accidental discovery that removed some of Jensen's augmentations early in the game, while simultaneously exposing a new array of mysterious abilities and gun-arms.

The gun-arm augmentations were introduced as experimental tactical weapons with lethal and non-lethal capabilities. They offered a »one-two punch« kind of firepower that could be used on-the-go in combination with basic weapons. We also allowed players to either go for the kill or knock-out their enemies non-lethally no matter which mode they were playing in: combat or stealth. Human Revolution had been way more rigid than this, by associating kills to combat and knock-outs to stealth. With Mankind Divided, though, we really wanted to give players a sense of control, immediacy, and flexibility.

Brainstorming such elements was only a part of the equation because we also needed control schemes that supported our new philosophy. We had to work hard to standardize the default control scheme because Mankind Divided is not your typical shooter experience. It might have seemed unconventional at times, but we wanted players to always feel in control of their character, like they really were playing as Man 2.0. Therefore, we needed to reduce the learning curve as much as possible.

We also needed to balance the new game differently. On Human Revolution, we had been so scared that people would not use their augmentations, the environments, etc., that we balanced things in a way that »encouraged« you (i.e., forced you) to use the power at hand. For the most part, this wasn't a problem with core fans. But a lot of franchise newcomers had their asses kicked so hard, they felt left out. When we made the DXHR's Director's Cut version, we corrected this by giving more default energy and loot, rebalancing health points etc. Doing so made the game more accessible, and the feedback we received afterwards proved we could craft a more forgiving adventure without sacrificing the Deus Ex experience. So, when it came time to tackle balancing in Mankind Divided, we moved forward with confidence.

All of the changes discussed so far also helped to make Mankind Divided's combat and overall experience more visceral, more immediate, and impactful. Combat had been very static and punishing in Human Revolution and we really wanted to do more to improve it. So, we worked on several other systems as well, including the enemy bark system, environmental reactions to bullets, and enemy varieties and their ability to use augmentations.

In the end, bringing Deus Ex to 2016 wasn't about changing everything. Rather, it was about understanding what we had achieved with Human Revolution – the good and the bad – and knowing where we could shake things up a bit without compromising the core experience. Mankind Divided was built on the same core values as Human Revolution. The difference was that we now had experience in building this type of game, so our experiments could be undertaken with more confidence.

I remember how, after the release of some action-oriented trailers and interviews in which we said combat would be more exciting this time around, several fans worried that we might sacrifice stealth and make an action game. But the game is released now and fans are still finding the recipe they loved in Human Revolution, except with one added note: This time around, combat is a valid option.

Closing Words

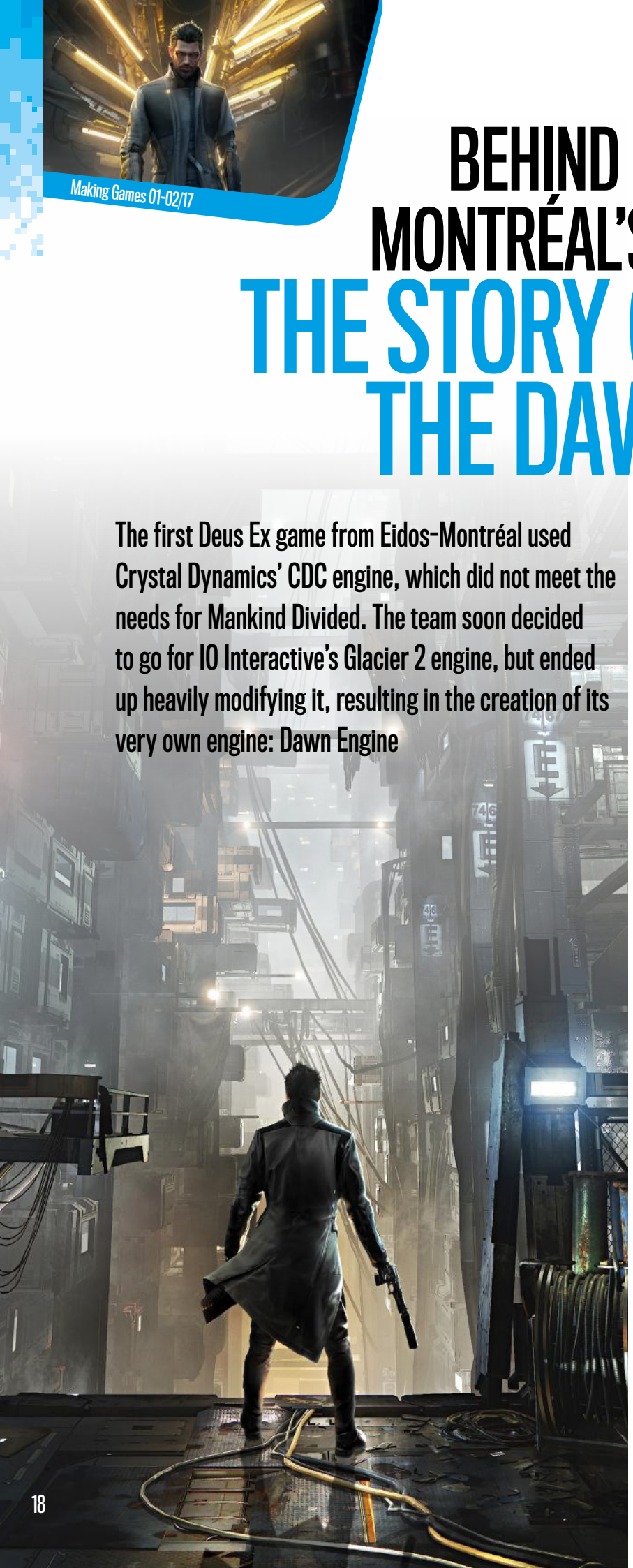
Looking back at the last decade spent working on Deus Ex, I can honestly say that the team is proud of what it's achieved. Are Human Revolution and Mankind Divided perfect games? Hell no. But they were made by a group of passionate people who took the endeavor very seriously. We were extremely honored to be given a chance to give new life to one of the most influential games ever made – a game created by a different bunch of passionate people who came before us. The least we could do was tackle the challenge with the same energy and commitment they did when it all started. I can proudly say that the Deus Ex legacy lives on.

Jean-François Dugas

BEHIND EIDOS-MONTRÉAL'S TECHNOLOGY

THE STORY OF THE DAWN ENGINE

The first Deus Ex game from Eidos-Montréal used Crystal Dynamics' CDC engine, which did not meet the needs for Mankind Divided. The team soon decided to go for IO Interactive's Glacier 2 engine, but ended up heavily modifying it, resulting in the creation of its very own engine: Dawn Engine



When Deus Ex: Human Revolution was released in August 2011, we were all relieved to have been able to see this through. Since we started working on the project, we had heard all the stories about the franchise. Eidos-Montréal was created in early 2007, and a core team would be assembled in May of that year to work on the mythical Deus Ex franchise. When I think about it, it was quite a daunting task. Not only did we have to create a new studio and draft as much talent as we could, but we also had to begin work on the third installment of a beloved franchise from the early 2000's.

Indeed, we had heard many stories about the franchise. While our studio was new, we worked closely with multiple people at Eidos Interactive's head office in Wimbledon, Crystal Dynamics in California, and IO Interactive in Copenhagen, who had been witness to multiple attempts to create a sequel to Invisible War without success. The pressure was definitely on.

From CDC for Deus Ex: Human Revolution ...

When it comes to tech, we set our sights on the Crystal Dynamics' engine (CDC). We were quite impressed by the history of the engine and its overall performance. We had quite a lot to accomplish, and a lot of content to fit in just one game. It was clearly the best decision at the time. We knew little about our game at the beginning, but discovered new things along the way. Games had evolved quite a lot since 2000, and we knew we needed to refresh the franchise while still keeping its core intact. So, we ended up with a long list of things we needed to do to adapt CDC for the purpose of creating a new Deus Ex, and new items would be added to the list as we refined the idea of what Human Revolution would eventually become.

We collaborated with Crystal on the development of these mutually beneficial changes to CDC for a good chunk of time. We eventually moved on to an isolated branch, where we pursued more drastic changes that would make DXHR possible, but were not desired for the Tomb Raider franchise. We clearly struggled on the dual mandate of creating a game that we had not fully defined yet, and also adapting the engine to this ever evolving idea of what Human Revolution would eventually be. One of our major tech undertakings was related to the Detroit level. It is what we call a city hub: a huge, open ended level that the player would revisit several times in the course of one walkthrough of the game. Not only would it contain elements driven by the core story, but the player would be able to roam the city and discover new things to do, including new side-quests. It required adapting the streaming system, creating a host of new tools to cope with multiple layers of gameplay, adapting the shape of the city depending on the point in time the story takes place, etc. The amount of content we crammed in that level was pushing the CDC tools to their absolute limit.

People who had to work in the Detroit level suffered quite a lot. It would take an increasing amount of time to build assets to see your work in the game, the editor performance would degrade over time, etc. Obviously, a lot of the programming effort was spent to alleviate the pain related to the pipeline, but it was still a long and arduous process.

Even as the main team was busy closing the game, we started looking at ways to improve our lives for the sequel.

... To Glacier 2 for the Sequel of Deus Ex: Human Revolution ...

A few months before the release of DXHR, a small team of programmers were indeed looking into some major changes we could make, with the goal being to help fit our vision of CDC. We wanted to make sure that, this time around, the engine would be able to cope with the amount of content required by a Deus Ex game. Those changes included paradigm shifts on how to build raw assets for the target platforms (Xbox 360 and PS3 at the time), ensuring the editor was able to better show what final assets would look like when built, etc. Those changes were too ambitious and risky to push during an ongoing production, but we wanted to have a head start for the sequel.

When DXHR was released, we mandated part of the core programming team of DXHR to undergo a large scale engine evaluation, with the goal being to investigate both commercial game engines and internal ones. The idea was to leave no stone unturned. That may sound a bit drastic, as continuing with CDC was the safe choice, especially considering we had proved it was quite capable of supporting the production of a Deus Ex game. On the other hand, it had been 5 years since we started to work on the game, and it was clearly a good time to re-evaluate the tech for our next move. Given the Thief team was using Unreal 3, it was obviously on the top of our list of commercial engines to consider. We also evaluated Unreal 4, which was in its infancy at the time. As for internal technology, we looked at the improved version of CDC that Crystal had been working on for Tomb Raider (2013) and IO Interactive's Glacier 2, which was a complete rewrite they were developing primarily for Hitman: Absolution.

That small team of 3 programmers found out Glacier 2 was addressing a lot of the issues we were having on our local version of CDC. On the other hand, Crystal had also been making extensive changes to CDC for the next Tomb Raider, and we had also made our own set of improvements. Both engines were very strong contenders for our next ambitious take on Deus Ex. The fact that the renderer in the Glacier 2

Julien Bouvrais
is Chief Technology Officer at Eidos-Montréal.

Julien started his career as Programmer at Ubisoft in 1998, working on projects like Splinter Cell: Double Agent, Splinter Cell: Chaos Theory, and Rainbow Six: Raven Shield, as well as two other unannounced games. In 2007, he joined Eidos-Montréal as Lead Programmer, becoming Director of Technology in 2008, and Chief Technology Officer in 2015.

Deus Ex: Mankind Divided uses Eidos-Montréal's Dawn Engine, which is a heavily modified version of IO Interactive's Glacier 2 engine. One notable addition to the engine was a performant hair simulation.

When the team started working on their first Deus Ex game, they used the engine that Crystal Dynamics had been using since working on Tomb Raider: Underworld. However, after the game was released, Eidos-Montréal realized that the CDC engine did not meet their needs.

engine was closer to what we needed, and the toolsets were addressing many of the issues we had just gone through for DXHR, were enough to make us strongly lean towards selecting it for the next big installment in the franchise.

A lot of the new concepts we had to introduce in CDC for Human Revolution were already there in Glacier 2. So that was already something we could safely assume would work right out of the box for DX4 (which was the codename of the sequel to Human Revolution at that time). Our next game would, however, ship on the next wave of consoles. That meant we needed, at the very least, to convert the engine to 64 bits, and the renderer to DirectX 11.

Early 2012, we made the choice to officially select Glacier 2 for the next Deus Ex. That said, making that decision was not easy. One has to keep in mind that we were not only looking at selecting an engine for the next Deus Ex, but also for any games that would follow. That was actually a big part of the conclusion of the technology evaluation, since it did relate to how we were seeing game development and workflows for the future of the studio.

The next big challenge was to port the »game layer« of Human Revolution from CDC to Glacier 2.

... To Building The Dawn Engine

Moving some high level systems from one engine to the other (e.g. much of the AI subsystems) was a viable option, as it only had limited dependencies on the core subsystems of either engine. For other systems though, no direct conversion was possible. Several gameplay systems were relying on the CDC scripting engine. However, Glacier 2 does not have a text-based scripting engine, instead opting for a very powerful »Entity System«. One can visually assemble behavior blocks to create more complex behavior. The whole engine is built in a way so that many, if not all, of the core subsystems can be interacted with through the Entity System. There is not much you can't do with it. The obvious drawback is that all of our scripted systems needed to be rethought and completely re-implemented when moving from CDC to Glacier 2.

We collaborated with IO on multiple topics in the first year of our adventure with Glacier 2. They provided a lot of support, which ensured that our content creators and programmers were familiar with the philosophy behind Glacier 2. Both studios also actively collaborated on several improvements to Glacier 2. For instance, we worked together as a single team to replace the animation layer, which had been in place since the engine had been originally conceived.

Obviously, we added a lot of requirements of our own. We did a lot of additional work on the rendering side, and a lot of care was put in setting up a Physically Based Renderer. We invested in Global Illumination techniques,

and offline processes for pre-computing light probes used for the second bounce, etc. We also reworked the streaming system extensively, serving the purpose of supporting the open-endedness of our new city hub (Prague), as well as that of the other levels with multi-path, back and forth, etc. These were new constraints that did not exist for Hitman: Absolution, but were very clear for the Deus Ex franchise.

One of the other big additions we had to make to the engine was to support shape shifting levels, much like we did for Human Revolution. Prague, which the player will visit multiple times during their play through, was intended to have both a day and a night version, changing weather conditions, and would even behave differently depending on when the player went there. City blocks would be barred or opened depending on when you visited, and population, along with overall AI behavior, would change based on the same criteria. Even if you visit the same location twice, it would be much different.

On the tools side, we had to add support for Deus Ex specific pipelines, including our conversation and character systems. When we added these tools, we developed them with WPF, which signified a move away from WinForms, the previously used framework in the original Glacier 2 engine. Moving to WPF allowed for increased performance for UI intensive workflows, as well as cleaner architecture, to clearly separate the UI work from the algorithms they leveraged.

Exactly five years after the initial release of Deus Ex: Human Revolution, we released its sequel Deus Ex: Mankind Divided. While we are pretty happy with how the game turned out overall, there are obviously some key areas where we're looking to improve the Dawn Engine.

Continuously Improving Our Engine

Since the studio started back in 2007, we have made forward looking strategic investments, focused on the future of technology. We now have a dedicated team for Dawn Engine, which is taking care of longer term improvements to

IO Interactive developed their Glacier 2 engine for the iconic Hitman series, but it contained many features that could benefit Eidos-Montréal when developing a Deus Ex game. This was not only the case in terms of graphical fidelity, but also through the tools that allowed for very complex character behavior.

its tools and pipeline, as well as the runtime of the engine. The idea is to ensure they are not caught in the immediacy of game production, and can make technology related changes geared towards the requirements for the next 6 to 12 months, while still accounting for the needs of the games currently in development. They will therefore tackle more complex, or more risky, tasks. We also created an R&D department, called LABS, almost 3 years ago. While being labeled as an R&D team, LABS is still very closely involved with production. We are not simply talking about research topics that will only see the light of day in 5 years. In fact, LABS has already contributed to 3 games since we assembled the team (Rise of the Tomb Raider, Hitman and Deus Ex: Mankind Divided), and worked on various technologies, such as hair rendering and simulation, snow rendering, ocean rendering, volumetric lights, Screen Space Ambient Occlusion, new lighting or occlusion techniques, and loads of kick-ass VFX.

Both these teams started working on the future of Dawn Engine long before Mankind Divided actually shipped. Even though the DXMD team was busy getting the game ready for release, we already had a long list of things we wanted to investigate for the next wave of games.

Dawn Engine (and the original Glacier 2 for that matter) being what it is, doing simple things can be quite complex, and the learning curve is often quite steep. For instance, the version Mankind Divided shipped with had very basic tools for particles. As stated previously, when you want to make a new particle system, you need to do it by assembling a few entities to get you going. Doing anything somewhat fancy can very rapidly become quite technical and tricky. Recently, we added a proper particle pipeline that greatly simplified things. Creating and configuring even complex particle systems is now not only simple, but consequently reduces iteration times by a considerable amount. Ultimately, assets created in this manner are of a much higher quality, as more time is spent working on the art, and much less on fighting with the tools. At this point, this is the strategy we are going for in pretty much all areas of content creation. On top of this, we have added support for GPU particles, while also reworking the general architecture of the particle system. All in all, particle simulation runtime performance has already improved by 30 percent. Recently, we also made huge modifications to the physics engine, which also yielded a 30 percent to 50 percent improve-

After the team had decided to use Glacier 2, a lot of modifications were made, which lead to the creation of the Dawn Engine. The team added and enhanced hair rendering and simulation, volumetric lights, Screen Space Ambient Occlusion, new lighting and occlusion techniques, and loads of VFX.

ment over the code that shipped this year. We are hopeful this will give our designers much more flexibility when it comes to adding life to the levels, or coming up with neat gameplay ideas that leverage physics.

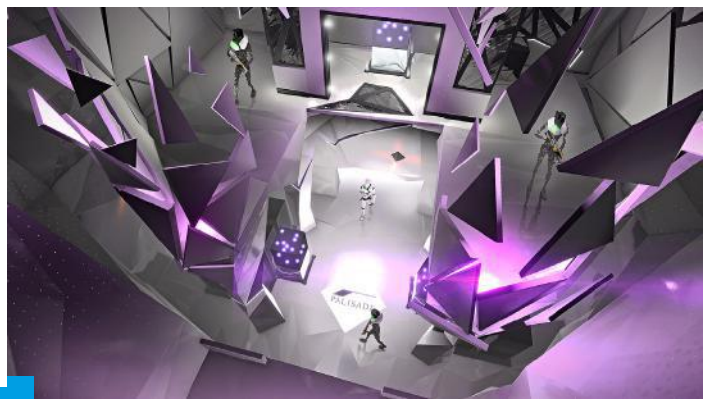
Another big topic we are keen on investing is animation. While we have been developing a new animation system in Dawn Engine since we started the working on Mankind Divided, there is still plenty left to do. Our current implementation is basically an animation graph that animators can fully control. It does what it has to do fairly well, but still requires a cumbersome setup to get things in motion. Again, these powerful tools give you plenty of freedom to shoot yourself in the foot, so we are looking at new ways to not only simplify the tools, but simplify the animation system as a whole. We have a few ongoing R&D topics focused on producing significantly higher quality body animations with less effort. I can't really get into the specifics at this stage as this is very early work, but hopefully we will be able to talk more about this in the not so distant future.

We are also specifically looking into facial animations. We know we have a huge margin for improvement, and also have some really interesting ideas on how to make them much more realistic. We are basically overhauling the whole pipeline from motion capture up to the runtime.

There is still a lot to do and, as a matter of fact, we are still learning a lot from Mankind Divided. Since the release of the game, we've been continuing to deliver patches for it. Of course, we are fixing bugs that unfortunately made it to the gold master, but we are also extending the Breach online mode, provided alongside the story mode. We are releasing content every month, and monitoring how our players are interacting with the game, not only through community forums, but also through metrics collected by our servers. We are literally going through gigabytes of data to understand how the game performs, along with what does and doesn't work. The wealth of data we have gathered in the weeks following the release has proven invaluable, not only on the creative side, but also in helping to make technology related decisions for our next projects. An example of this is how we will adapt our multiplayer approach in the future: We are already doing the groundwork to support a newer vision for multiplayer and, this way, ensure that the technology will not be a limiting factor, particularly when trying to bring new and innovative ideas to life. Of course, this applies to several other areas of the engine as well.

Overall, I am quite happy with how the game turned out, and the solid game engine we now have. There is always going to be something that needs improvement, but that's who we are. That's really what's keeping us motivated every day.

Julien Bouvrais



Deus Ex: Mankind Divided includes a live game mode called Deus Ex: Mankind Divided - Breach. Since releasing the game, the team has learned a lot on how to improve the engine, ensuring that the technology will not be a limiting factor, particularly when trying to bring new and innovative ideas to life, such as those for multiplayer modes.

PLAYER'S CHOICE IN A DEUS EX GAME

Deus Ex: Mankind Divided allows players to approach the game in any way they want, be it by creating chaos, by being stealthy, or anything in between. Senior Level Designer Julien Hantz explains how Eidos-Montréal created quests and levels that supported this kind of gameplay.

Designing the quests for a Deus Ex game is a great and unique exercise. This is because it is done by giving players the opportunity to play the way they want. This seems like a bullet point that we see on the back of the box of a lot of games, but only a few really deliver on that promise, even open worlds, who generally offer a systemic experience between very linear missions. In Deus Ex: Mankind Divided, we put player's choice at the core of every step of our design process.

What does »player's choice« really mean in a Deus Ex game? It means that, for any given mission, players will be able to reach their objectives by using multiple paths, completing them by different means while having the freedom to choose how they will proceed past each obstacle: »Do I play stealth, avoiding any conflict and never being spotted? Do I go in guns blazing? Do I neutralize my enemies by being lethal or non-lethal? Do I use augmentations, or not at all? Do I stick to one strategy all along, or do I adapt to the situation and do a mix of everything during one single mission?«

As quest and mission designers, our role and commitment is to make sure that, every time until the end of the game, all these options remain available and possible. When we say that it is possible to remain stealthy during the whole game, even more so by never being spotted and/or by not neutralizing anyone, it needs to be part of our production checklist. If we say that you can also complete the game without ever upgrading your character, it is also something we need to take into consideration when building the game world, which includes the different paths leading to each objective. Failing to do so is not an option, and we wouldn't have shipped the game if even the smallest section of the game didn't meet this core requirement.

Having all the choices in the world isn't worth a lot if the game doesn't react to the player's actions. For all quests and missions, we needed to think about how to give player's constant feedback regarding their playstyle. This can be done through some subtle changes in future conversations or briefers, adding completely new objectives or environment setups, or even a direct tie in with the main story.

It seems to be a given in games in 2016, but think about it for a moment: how many games provide you with this amount of freedom? Not a lot. Why? Because it is challenging to create a simulation that responds to the player's actions, and it is very costly in terms of production. This is because a lot of variations, along with a lot of specific content, needs to be created, but a good amount of it will never be seen or experienced by players who only play

Julien Hantz
is Senior Level Designer at Eidos-Montréal.

Julien started his career as QA tester at Ubisoft in Paris in 2001, quickly switching to Level and Multiplayer Designer. In 2003, he moved to Ubisoft Montreal where he worked 5 years on a few AAA games as Level designer, Game designer, and Senior Technical Designer. With his expertise in stealth and non-linear gameplay he joined Eidos-Montreal to work exclusively on the Deus Ex franchise as Senior Level Designer. After a short stop at warner Bros. Montreal, which he joined in 2013, he returned to Eidos-Montreal in 2015 to help finish Deus Ex: Mankind Divided.

the game once. While this seems like a lot of constraints, it is also what makes creating a Deus Ex game such a fulfilling experience.

Macro Design: Missions and Objectives based on Player's Choices

In the world of Deus Ex, missions and objectives are never set in stone. They can be updated, cancelled, or failed without leading to a »game-over« or forcing the player to reload his game. We always need to make sure the player will be able to explore, roleplay, fail missions, or even break the rules of the game while the story continues to unravel its secrets. We need to give the player the feeling that the game world reacts to his actions, but also lives and breathes without them.

In order to keep things fresh, we didn't have one set way to design missions, and every mission or quest had its own structure, depending on its place in the story. Of course, we have objectives that, whatever the player does, will need to be completed in order to tell our story. However, let's focus especially on how player's choice can affect the way we create our mission objectives.

Optional Missions or Objectives

Optional missions or side quests are important because they are independent stories, designed to reinforce the themes of the game while adding depth to the game world. However, they are also important because the player is free to ignore them. There are situations within the game that exist despite the main mission and actions of the player. Completing them will make the world richer, will give the player more means to express themselves, but not completing them, or ignoring them, shouldn't lessen the core experience for the player. Even if they are ignored though, the presence of these characters and optional areas of the world gives a greater sense of depth to the game, encouraging replayability.

Outside of the main quest, players can pursue any side quests they like. If completed, some of these missions might make their lives easier along the way. However, if they choose to ignore them, the game won't punish the player.

Optional objectives within main missions are different, mainly because they will eventually challenge the player on his playstyle, provide opportunities to get additional XP, or help them to have a better understanding of the mission. We talked earlier about player's choice, and the possibility for one player to stick to one strategy throughout the entire game. Having the freedom to play the same way from start to finish is good, but being morally challenged while doing so is even better.

To give you one example, at the end of the game, there is one mission where terrorists have infiltrated a security detail during a public event, and you need to uncover what their true plans are. One optional objective is to neutralize all of the fake security guards, providing protection to a large crowd of innocent civilians before the terrorists can act upon any of their plans. It is totally possible to ignore this objective, but doing so will lead to the deaths of many people. In that case, this optional objective will challenge stealth players, who usually tend to avoid confrontation. Doing nothing has consequences, and therefore creates a dilemma for players who already have a well-established playstyle.

Preemptive Objectives

Another great example of objectives based on player choice are preemptive objectives. They are particularly interesting because, again, not a lot of games give you the opportunity to complete an objective that hasn't been given yet. Most games are based on a linear structure, where locations and setups are made available the moment the game tells you to go there and complete a specific action.

One example in Deus Ex: Mankind Divided is that, at the very beginning of the game, if you decide to ignore your first primary objectives and explore the city, you may end up at Otar's casino, where it is possible to steal the calibrator (an item critical for one of the games side quests) right away. Then, when you talk to Koller (the one who assigns you this quest), Adam answers that he already got it. It seems trivial, but in most games, the calibrator wouldn't even be present in the location yet, or accessing the casino would have been impossible. This is a little thing, but it is very typical of a Deus Ex game.

Conditional Objectives, Objective Updates, and Hidden Objectives

From the get go, the missions, and their objectives, are designed in order to make sure that no matter what happens, the only thing that will end the mission is the player's death. To do so, we create diagrams where everything is planned, and every objective update is written in advance.

Of course, we have a few tricks to make sure the player will end up in some bottlenecks, allowing us to be able to tell a story in the end. However, everything that happens in between has to be possible.

That's why we always think about the worst thing that could happen, and create our ob-

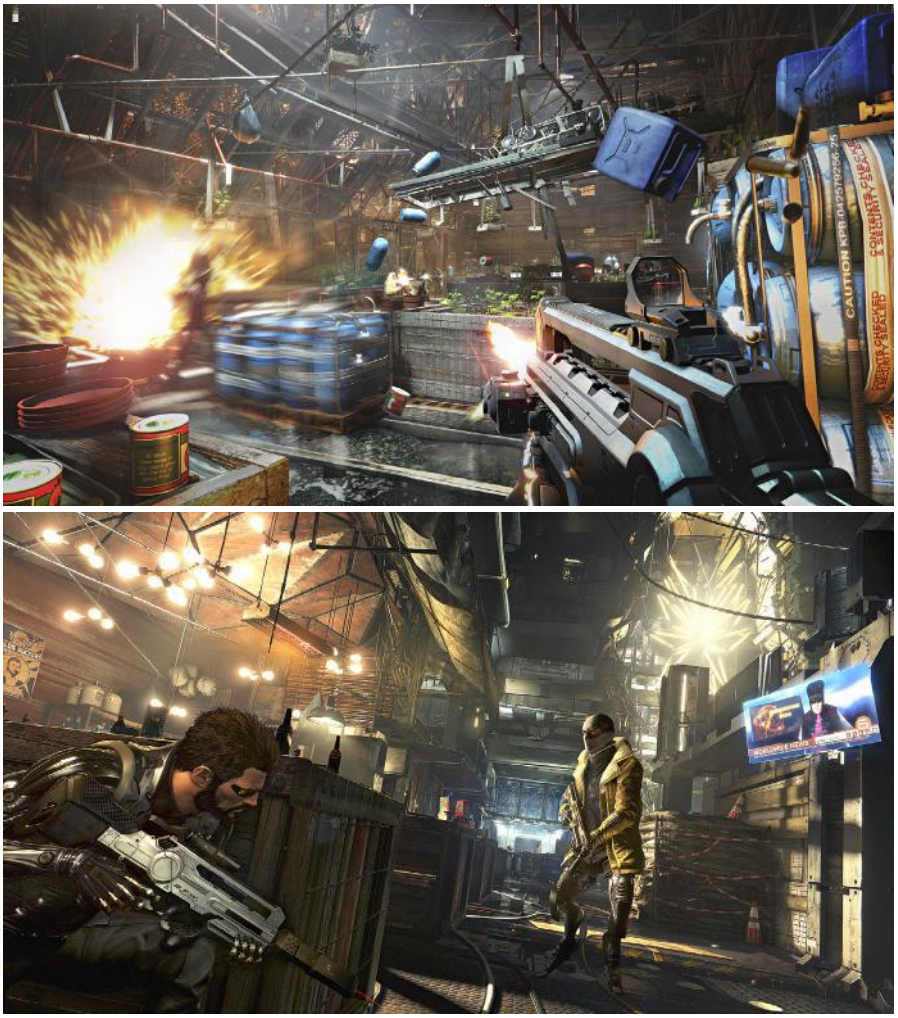
jectives accordingly. Most of the time, a player will only see a relatively simple succession of events, leading to just a few objective updates. But under the hood, we planned every action he could have done, and how far he could have gone within the limits of our simulation.

One of the most beloved side missions of the game, »The Harvester«, has an amazing number of ramifications. In it, depending on what the player discovers, what augmentations he has, and what choices he makes, the objectives given and their descriptions will change to highlight what he has done. The mission itself can be really short, even ignored, but can also last until the final act, and can even end up in a boss fight (or not!). What makes this game stand out is that every player will be able to talk about their experience, and each experience will undoubtedly be different.

In the end, what matters for us designers is to really make sure that every mission feels unique for the player, that the objectives are tied to the player's choices, and that all the game gives the player enough feedback on how he is playing.

While creating missions that can be ignored, failed, or made really short depending on how you play is not really a problem for side missions, it is a completely different story when creating objectives that are tied to the main quest. To give you another good idea on how we think about player choice and how it affects the way we create main objectives, there are a few examples of how we tried to push the limits and support players who don't like to play by the rules.

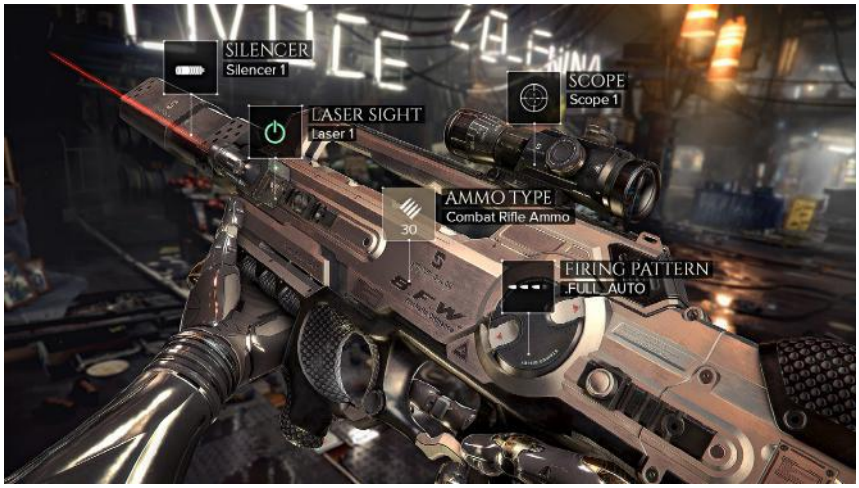
In the final mission, one of the first objectives is to go talk to a receptionist. It would have been easy to force the player to talk to this guy through a scripted event or a small cinematic, but instead we kept the receptionist in the game world, with the risk that the player would ignore them, or even kill them. When you choose to let the player do what he wants, it multiplies the number of possibilities. Therefore, you need to make sure that everything is thought of, and that every line of dialog is planned and makes sense. For example, there needs to be an objective update for each possibility: if you create chaos before talking to the receptionist, if you create chaos after talking to the receptionist, if you bypass him, or if you talked to him. However, this is only the beginning, since the entire map and its succession of objectives is based on giving the player the right to ignore or disobey most of them.



In any given situation during the game, the player can choose to start fighting, or to stealth past enemies - this was a big challenge, as both the characters, and the game world as a whole, had to react accordingly.

Another example concerns the final boss fight. In most games, when you get to the boss room, you are stuck in the room until the combat is done. In our case, it is absolutely

As the player is free to choose which augmentations they want to use, the designers had to be careful when balancing those powers, ensuring that none of them became absolutely vital or overpowered.



Players have complete control over how they choose to play the game, with them also having the freedom to select the powers or equipment that match their play style. Therefore, the AI in the game has to be able to react to anything the player does.

possible to escape the room, complete your other objective, then go back and finish what you started. Again, it is really demanding on the design team, because all objectives must be thought out in every possible way, and dialogs must still make sense.

One of the most challenging, but also rewarding, parts of creating quests and missions for a Deus Ex game is to let players do what they wouldn't be allowed to do in most other action-adventure games. Mankind Divided is not an open world, and players still need to follow a somewhat linear story, but the way they complete objectives, and the way the objectives always adapt to the players' choices, makes it a very unique game.

Choice and Consequences

Having the objectives adapt to the players choices is one thing, but it's another to have the environment, and the people who are populating the world, react to every major action undertaken by the player.

To give a few examples, the content of newspapers/emails will change depending on how some objectives are completed, conversations between NPCs or with major characters will change depending on the players' actions, and some gameplay situations will also be different.

If the game reacts so well in terms of objectives and conversations, it is because a lot of work is done by the Level Designers and Narrative Designers to think through, and plan for, every possibility. It is hard work in terms of planning, iterations, and testing to make sure that every piece of the puzzle is well put together.

Another part of the work of designing a quest or mission is to create an environment where players will get to express themselves throughout minute to minute gameplay, choosing, in a very systemic manner, how to behave and go through a mission by using stealth and/or combat.

Minute to Minute Gameplay: be a Ghost, a brutal Soldier, or anything else in between

One of the main features of Deus Ex is to give players the freedom to choose between stealth and combat, and to provide them with the ability to change their strategy on the fly. All of this is possible because of the way the layouts are designed, and the way the AI works.

Layout Creation and Cover Placement

The cover system supports both playstyles, allowing stealth players to stay hidden and easily break line of sight, while providing combat players with strategic cover, giving them an opportunity to avoid incoming fire and flank their enemies.

The layouts are all designed with player choice in mind. Even if the layouts contain more than one path to get to one objective, there is not one path for action, one for stealth, one for hacking, etc. While some paths will be made to accommodate one playstyle over the other, whatever the path you choose, you should always be able to play the way you want. The main reasoning behind that statement is that, when players do choose a path, they won't be able to immediately recognize if they are taking the path which will suit their playstyle or not. In a game where improvisation is king, we need to make sure that every player has the means to express themselves, without relying on the principle of trial and error.

If the player creates chaos somewhere in the game world, they will quickly realize that NPCs, or even newspapers/emails, will reflect their actions. Eidos-Montréal was keen to create a living, breathing game world.

Every single encounter must take place in a layout that allows players to:

- Observe the main threat from a safe zone without ever being spotted (if staying in cover), allowing them to plan their infiltration or attack.
- Move from cover to cover in a very easy and natural way, either bypassing their enemies, or taking them down in the most efficient way possible.
- Be able to retreat (if seen or overwhelmed), change their tactics, and get back into the action.

These simple principles and gameplay loops are valid for both stealth and combat players. Having open environments where it is easy to read the action, easy to look for vantage points, and easy to find places to hide while in difficult situations, serves all possible tactics, providing the opportunity for players to improvise and change their playstyle on the fly.

AI Behavior

In order to support the different playstyles, NPCs have different states which will adapt to every situation. Their behavior is very complex, but for the sake of simplification, let's say that NPCs have 4 different states: relaxed, cautious, hostile, and alarmed.

- Relaxed is when an AI character hasn't seen the player, and is playing his default occupation.
- Hostile is when an AI character has seen the player, knows where he is, and engages them in combat.
- Alarmed is when the AI is actively looking for the player after he has disappeared, or an alarm has been triggered.
- Cautious is when, after having seen the player or after an alarm has been triggered, the AI goes back to their regular occupation. This last behavior is very important, because it creates a gameplay loop where players can start playing stealth, get spotted, and enter a combat situation. It provides them with an opportunity to escape and wait for some kind of reset, then try to stealth their way back again during the same mission. Of course, the AI will be more careful, and the patrols will be a bit harder, but it will still be possible for players to get back on their feet and try another approach.

Being a hybrid game, Deus Ex has to find the right balance between an AI that is challenging enough to engage you in great firefights, and providing players with enough latitude to be able to escape, or avoid being detected too easily.

While combat is handled in a systemic manner, stealth is hand crafted by level designers. All relaxed and cautious patrols are custom made, and it is really important for us that players will be able to look at the patrols, understand them, and act accordingly. Patrol creation is based on a lot of guidelines, designed to challenge the player without creating too much frustration.

The AI has four different behavior patterns, each connected to how alarmed they are. However, even if players fail when taking a stealth approach, they can retreat at any time and come back later, allowing them to try again once the AI has ceased their search efforts.

The Use of Augmentations

Finally, in a game where augmentations are a major part of the story and players' progression, we need to design the missions so that, when a player has the opportunity to use them, he will gain a strategic advantage over his enemies or his environment.

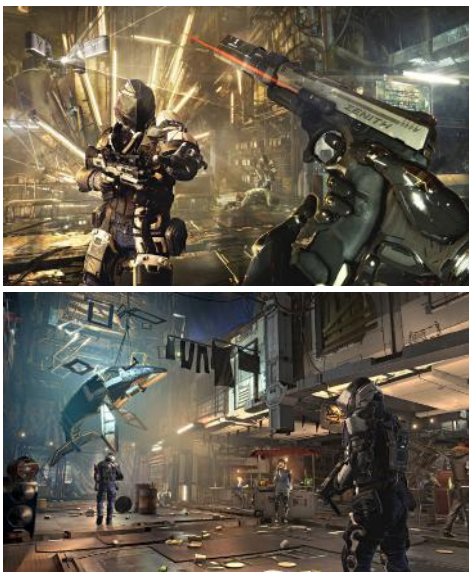
Even if all missions can be completed without being augmented, every path and every corner is full of opportunities for players who decided to augment themselves. The main goal here is to create the need for the player to get augmentations, but also to give players opportunities to use the ones they already have.

Because there is no way to know what augmentations players will have at any point in the game, we try to balance the missions by locking off different sections, requiring varying types of augmentations to access them, and making the »aug free« path a lot harder. Sometimes, some missions will rely heavily on one particular augmentation, but we keep tabs on the opportunities created by each aug, and make sure that one augmentation does not become more useful than another.

Conclusion

Player choice is at the center of every design decision regarding the quests, from high level objectives to minute to minute gameplay. For all that to happen, it requires an amazing amount of thinking and consistency, not only in terms of level design and narrative design, but also in terms of art. Deus Ex being set in reality, made the comprehension of the world a lot easier, helping to reinforce player choice. This is important because choices only truly exist in a game when you are able to understand, or be fully aware, of all the options available to you.

Julien Hantz



As long as enemy characters are simply patrolling, players can easily go from cover to cover, relatively risk free. However, once the AI has been alarmed, are cautious, or are moving into a state of engagement, they will react more quickly and aggressively upon sighting the player.

THE DESIGN PRINCIPLES BEHIND DEUS EX

Gameplay Director Patrick Fortier discusses the game design behind Deus Ex: Mankind Divided, including how the team created the characters, weapons, and AI that filled a plausible, but not necessarily realistic world.

Patrick Fortier
is Gameplay Director at Eidos-Montréal.

As a child, Patrick already wanted to do Game Design before even knowing it could be an actual career! Over the past 19 years, he's had a chance to work with fantastic people on a variety of projects such as Speed Devils, Myst, Splinter Cell, 1666 and currently with the Deus Ex: Mankind Divided team where he acts as Gameplay Director.

One of the most interesting aspects of working on a game like Deus Ex is the opportunity to use the setting as a »window to the future«. This is the result of the game being set roughly fifteen years in the future, and being built around the core theme of transhumanism. As developers, we get to spend years exploring and discussing technological concepts which are slowly (or quickly in many cases) becoming a reality effectively reshaping the world around us.

Contemporary Reality, a double-edged Sword

One of the main reasons for choosing to frame the game this way came down to the emotional experience we were aiming to create for our audience. Pushing further ahead in time might provide greater creative freedom, but pushing our universe into true »sci-fi« territory would also mean giving something up. By providing players the ability to go about things the way they want, with real consequential freedom in a world that is very akin to their own, our goal is to create something which will resonate with them, which will impact them emotionally, and which may even help them to discover a little something about themselves.

Having players operate in a world that is a stone's throw away from ours means, they are particularly sensitive to it. They can draw parallels more easily with their own reality. While this can make it easier for them to project themselves into our world, it can also lead to some headaches for us as developers, since it makes our audience much more demanding in terms of the overall »realism« of all the different aspects of the game.

People understand how the media manipulates information, they know how a city would react the day after a terrorist attack, they understand the complexity and corruptibility of important governing systems, they have an idea about what is humanly possible, and they understand what remains constant in a society, even as technological progress invariably pushes us forward. People still eat, they still drink coffee, they still gossip

about the latest happenings, they still need downtime, etc.

Regardless of its setting, any narrative-driven game needs to spend time establishing these things, framing its own particular »reality«. No matter the time period, the exercise remains roughly the same. You need to understand the realities of the world you are creating (its inhabitants, technology, major historical events, etc.) and deliberately expose it to your players.

The World

The first element players will discover is the world itself. How things look, how people are dressed, how they behave, how they interact with the environment, and with one another. While maintaining the illusion of »realism« can be challenging, being able to draw from »reality« can be advantageous as well. You only need to look outside to find inspiration for common occupations. Drinking coffee, using vending machines, talking on the phone, or taking pictures are activities that are easy to imagine will still be part of our lives in the near future.

However, before long, you have to make some important gameplay decisions that are ultimately not »realistic«, but which are essential to the overall flow and enjoyment of the game. For example, we chose to have a game where NPCs react to you having your weapon drawn out (they refuse to talk to you and comment on their discomfort), but we decided against having them panic and run away at the mere sight of it. Obviously, in real life, you would immediately dial 911 if you saw someone like Jensen walking around your neighborhood with exposed firearms. Actually firing a weapon, whether it hit a target or not, would simply cause complete pandemonium. Everyday life would stop immediately, police would shut down the area and begin an investigation. People would be talking about it days, or even weeks, later with their neighbors, and some would stop going to work for a few days.

Obviously, that level of realism would be majorly detrimental to the gameplay experience. Players would never be able to experiment – never-mind fail – at exploiting the different gameplay abilities. However, players do have expectations that there will be some level of consequence for such behavior. That is why we do trigger a reaction: people yell and hide, and try to alert the local authorities. You do feel that your presence and your actions are generating panic, and the police force reacts immediately by coming after you. After a while though, there is a cool-down period and life returns to normal. This approach allows players to remain immersed in the game world, since NPCs do react dramatically to their actions, but also carry on and recuperate. Players don't need to reload a save to have NPCs go back to a normal state. In fact, it's often something users will play around with intentionally to see how the game deals with the situation and its consequences. Since they are so punitive, players will generally choose to avoid gratuitous altercations like that afterwards.

Another element which is really important for the credibility of our world is to witness how the population is affected by the events and the overall themes of the game. Transhumanism does not simply translate into cool powerful characters like Jensen. It affects everyday lives in many ways, from the pressure to compete, to the desire to reshape yourself or heal a loved one. It's important for players to see the far-reaching impact of the theme as they travel around the game world, along with hearing people talk about current events (which players may or may not have an influence on). To that end, numerous overheard conversations are placed all around the game world, newspaper articles are created to be adaptable to the players choices, and radio and TV shows are made to provide more background information, framing things from a perspective that goes beyond what players

The topic of augmentations plays an important role in Deus Ex: Mankind Divided, not only for the game world and atmosphere, but also for Adam Jensen as the protagonist. He has had time to get used to the many augmentations inside his body, and he is no longer hesitant to take advantage of them for his own personal benefit.

readily have access to. We also take the time to create content on computers and mobile devices, showcasing exchanges NPCs are having with one another about things affecting their lives and their futures. All of these elements come together to create a rich tapestry on which players can project their own thoughts and assumptions. It bridges the gap between the »game design« objectives of the game, and the »virtual world« portrayal of the setting.

Jensen, the Augmented Man 2.0

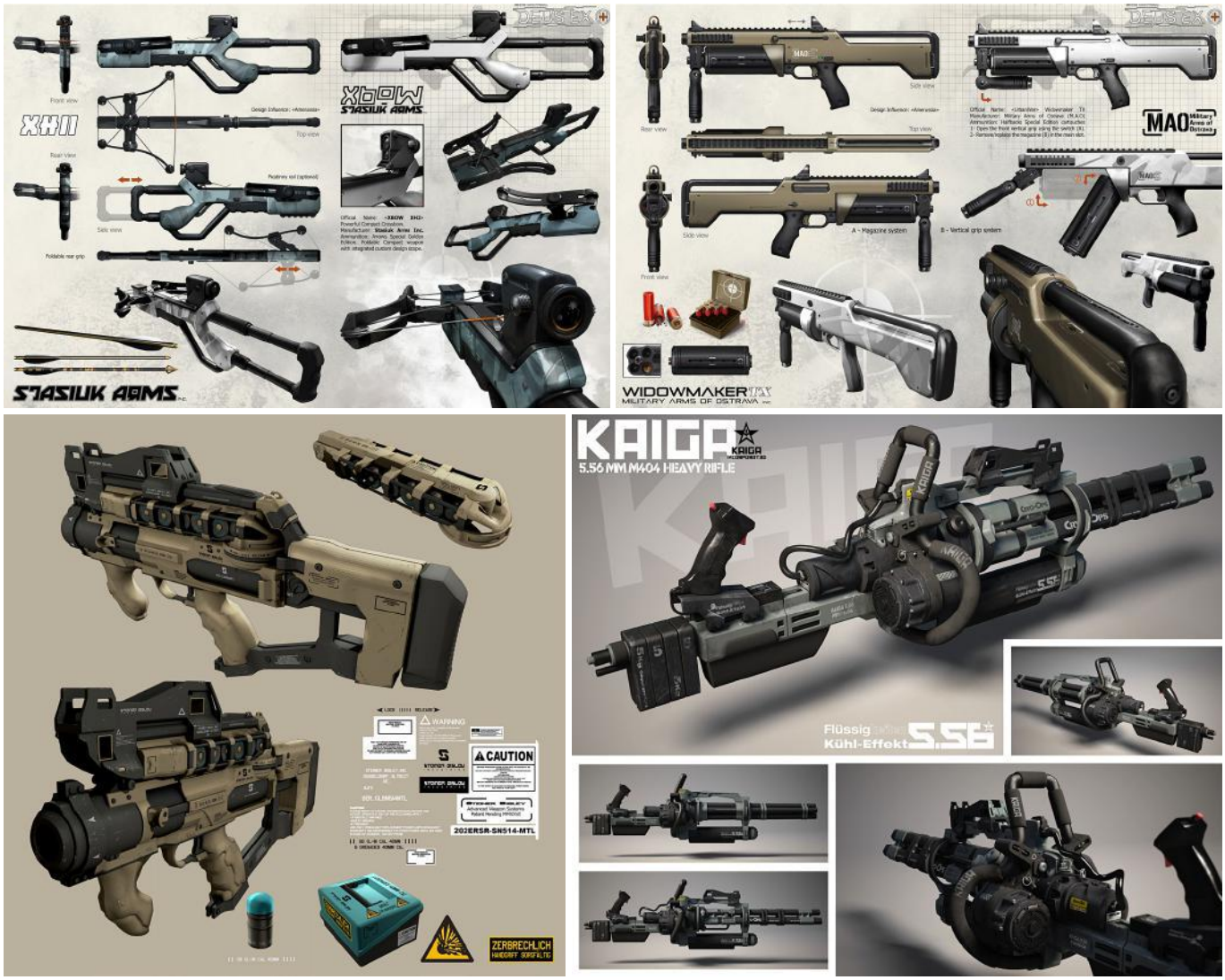
In Mankind Divided, it was of paramount importance to show the evolution of Adam Jensen as a character. Some of the naiveté he showed in Human Revolution had to give way to a strong personal motivation to get involved, a hunger to uncover the truth, and greater self-acceptance. Transhumanism being the core theme of our game, we wanted it to come across differently this time around. Adam is no longer just coming to grips with the idea of being augmented. He has had time to get used to the many augmentations inside his body, and he is no longer hesitant to take advantage of them for his own personal benefit. Gameplay-wise, we chose to translate this feeling of comfort first through the control scheme. With more augmentations to choose from and our main character being more comfortable using them, we wanted to create a more direct access to augmentations for players. We started by designing the quick selection wheels and mapping them to the control sticks. This allowed for instant, symmetrical access to both the inventory and the aug-menu. We also echoed this in the UI, with augmentations on the left-hand side of the screen, and weapons on the right-hand side.

Having to hold either the right or left thumbstick to make a selection meant our control scheme would be a bit more demanding than a typical FPS, but it also meant augmentations and equipment were always only one click away at any time during the game. Seeing as the game is less »action-frantic« than most, we felt comfortable enough to experiment with this system. Sure enough, it immediately became clear that it was putting augmentations front and center, while also feeding nicely into the overall fluidity and rhythm we associated with Jensen's new »self-comfort«. We also decided to dedicate one of the shoulder buttons to the augmentations. Not only would doing this make a strong statement to players about the importance of augmentations, but it also allowed them to use their favorite augmentation smoothly and seamlessly – even while being in movement. Again, this made a tremendous difference once we started experimenting with it, and it became clear we had to embrace this direction.

In regards to the augmentations themselves, it's also important to explain where they come from: these are not »magical powers«. The experience point system, while a useful game design tool, also has to be justified in relation to the themes of the game. Although we needed to »re-spec« Jensen in order to provide players with the freedom to design him in a way that matched their playstyle, we still felt the need to explain all this through the »logistical« issues related to having augmentations. Jensen is unique in that he does not require the neuropozyne drug that prevents aug-rejection from the body, but he is still subject to brain adaptation in order to fully control his mechanical augmentations. This is how we justify the experience points system. They are a visual feedback built into Jensen's HUD to provide information about how well his brainwaves and his body are adapting to the presence of augmentations. We also made a deliberate choice to show, through his interactions with Koller, how complicated it can be to have maintenance over these augmentations. It's not a matter of simply adding or removing augmentations, and there is clearly an element of danger tied to it all.

When actually designing the augmentations, we first looked at function over form. Like much of what we do, it started with a

It was important to be able to witness how the population was affected by the events, and the overall themes, of the game. It added a sense of credibility to the world of Deus Ex: Mankind Divided.



The main weapons found in the game are contemporary, which means they are somewhat futuristic, but at the same time based on weapons that either exist, or might exist in the near future. Therefore, they need to reflect players' expectations about relative strengths and weaknesses.

brainstorming session and many post-it notes. We were just throwing out ideas for abilities that would be cool to have. We then took that initial set and pruned its content down based on usefulness. For instance, seeing through walls is not just something cool to do, it can prove invaluable when attempting to play stealthily. Similarly, in a world with a lot of verticality, the ability to fall from any height without taking damage is also very useful. The question we were asking ourselves at that point was: »What would players want to do and why?« We were looking at how much value we could bring in terms of interesting decisions to make, while also ensuring that all four gameplay pillars (combat, stealth, hacking, social) were represented in some way.

Once the functions had been determined, we spent a lot of effort justifying how each augmentation could be explained from a technological standpoint. We could have left it vague, but we felt that grounding our augmentations in real existing concepts would help tremendously in fleshing out the world along with making it feel more credible. After all, since the beginning of the project, we've always said that the augmentations were the »stars of the show«. It was only natural that we took the time to really build them up and put some care into detailing them properly.

We helped maintain plausibility by doing lots of research on where technology might be heading in the next 20 years. We also employed an external consultant to ensure that any science stuff would be as close to the mark as we could make it.

Weapons

The main weapons found in the game are also contemporary, and need to reflect players' expectations about relative strengths and weaknesses. At the same time, it was very important for us to give each weapon a »job«, which is not always the case if you base yourself purely on real-life weapon values. We wanted players to switch between weapons

based on what they needed to do, each weapon being best suited for specific situations. Ultimately, we did this by taking each weapon's attributes and elevating one or two of them, making them better than any other weapon's. For example, there's a weapon with better damage, one with a big clip-size, one with a high rate-of-fire, etc.

Once each weapon had been made unique in its own way, we balanced all other attributes accordingly. The goal was to counter-balance a weapon's strengths with some weaknesses. For example, the weapon with the best damage is given a small clip-size, or a lower rate-of-fire. Looking at DPS (damage per second) is a way for us to compare weapons, done by aggregating several attributes into a single numerical value. This comparison is not perfect, since some attributes cannot be factored in, but when coupled with other values (such as accuracy), we get a good idea of where changes are warranted to achieve the desired balance.

We validated our changes by having people play the game averaging out how much usage each weapon gets over the course of the game. If we see that one weapon is favored or ignored disproportionately, then we go in to make changes and test again.

Having a »realistic« setting meant that the team mainly uses »human beings« as the main NPCs. The main goal was to make them feel like they had a real purpose in the universe, other than patrolling patiently in wait of the player's arrival.

NPCs and AI behaviors

Having a »realistic« setting means we primarily use »human beings« as our main NPCs. We need to make them feel like they have a real purpose in the universe, other than patrolling patiently in wait of the player's arrival. They have to feel »alive« in their environment if we want to covey the narrative properly. Yet, they need to be predictable enough for players to readily identify patterns allowing them to exploit them to their advantage. This is always a bit of a quandary in game design, and one that's especially true for this game, since we essentially have two AI systems for players to interact with: one for combat and one for stealth. The challenges of designing for each are very different.

Stealth is all about detection. That was our main focus during the design process. AI can see, hear, and touch; that's how it can detect the player's presence. But from how far away? At which angle? Are attenuating factors, such as lighting, taken into account? Those are questions that can have far-reaching impacts on how players experience the game. When you think about it, the answers to these questions are invisible to players. It's not like they see an NPC's cone-of-vision and understand why they've been detected. On the contrary, vital information, such as the width and length of an NPC's vision cone, is often obfuscated, which means players can only interpret what's going on, but they never really know. Herein lies the challenge of designing for stealth. You can't just go about setting your rules based solely on difficulty or realism. You also have to keep in mind how players will interpret what they'll see, and whether they'll think it's fair or not. In fact, the more you succeed at effective and believable world building, the less players will actually see the NPCs as »detection machines«. They will start expecting regular »human« behavior, and will be disappointed if the NPCs are too mechanical.

Early on, we told ourselves that we wanted stealth to feel like a game of cat and mouse, where the player is the cat and NPCs are the mice. But for that to happen, players needed to feel in control – to understand the rules of stealth so they could act accordingly. However, since stealth can sometimes feel »opaque« in how it works, we knew we had to be careful in how we built our detection systems. A good example would be each NPC's cone-of-vision. At first, we did what reality dictated: we paired it with the NPC's head, so that the cone would move along with the head and »see« in the same direction as well. When the feature was tested with external players, the results were abysmal. Players kept getting detected without knowing why, which made

Early on, the team decided that they wanted stealth to feel like a game of cat and mouse, where the player is the cat and NPCs are the mice. Therefore, it was important that levels featured a safe vantage point for the player to start from which, if needed, would allow a retreat at any given time.

stealth a very frustrating experience for them. After some analysis, we realized that players often misread where NPCs were actually looking, because the head was too small to see accurately at a distance. Following this, we attached the cone of vision to the torso instead. This made it easier to see from afar in which direction an NPC was pointed, and greatly improved how players fared.

The AI design for combat centered on cover. How do we get NPCs to use cover, and make them feel credible while doing it, all the while making sure they aren't too lethal? Ultimately, it came down to a series of parameters, such as distance to player, accuracy, and cover availability. We wanted NPCs to move around, but not too much. By tweaking these parameters so they were in balance, we were able to have NPCs that moved from cover to cover, either to adjust their distance from with the goal of reaching the optimal range from the player for the gun they were currently using, or staying put if the conditions were right for them. The rest came down to hit points, damage, and how many NPCs could fire at the same time.

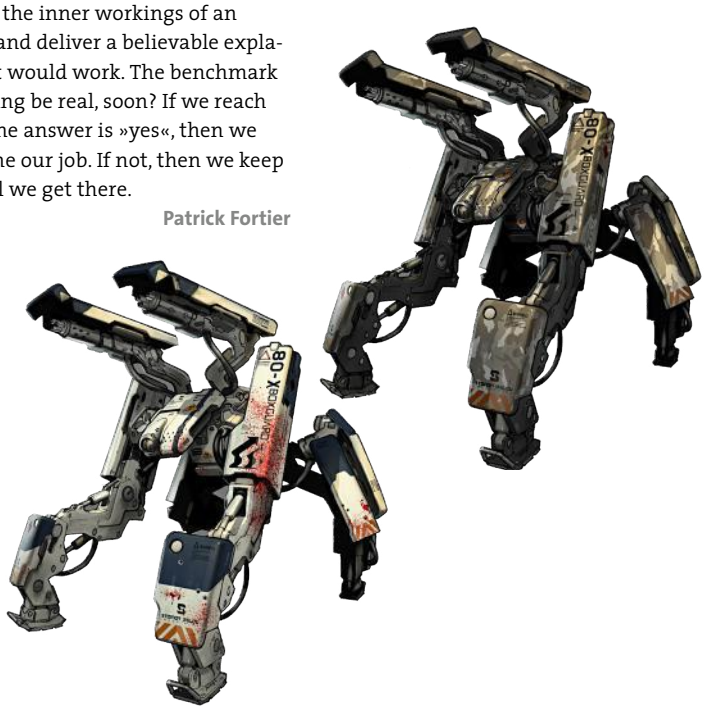
»True« Reality is Perception, not Facts

Ultimately, the real goal is to create a »plausible« world more than a »realistic« one. By being true to our own themes and the rules of our setting, by being consistent with our characters and their relationships with the world, and by being mindful not to add elements gratuitously, we manage to create a universe which feels tangible, but which is also interesting enough for players to want to lose themselves in. We continually strive for credibility, but rarely for realism.

We give that leeway to ourselves when justifying our features in terms of how they would work in real-life. We accept that we can't be faithful to reality one hundred percent. The game does take place in the future, and no one truly knows what technology will look like twenty years from now. However, by looking at what is possible now, and where prominent experts think we are headed, we can extrapolate the inner workings of an augmentation, and deliver a believable explanation of how it would work. The benchmark is: could this thing be real, soon? If we reach a point where the answer is »yes«, then we know we've done our job. If not, then we keep on digging until we get there.

Patrick Fortier

When actually designing the augmentations on Jensens arm, the team first looked at function over form, and tossed around ideas for those abilities. Once they determined which ones would be in the game, they then took the time to explain them logically.



HOW TO CREATE A BELIEVABLE CYBERPUNK WORLD

The Art Director of Deus Ex: Mankind Divided explains how he and his team created a futuristic, but believable cyberpunk world. He also explains how Medieval times, as well as color schemes, are critical elements to making this type of world come to life.

Martin Dubeau is Art Director at Eidos-Montréal.

Martin started his career almost 20 years ago as Lead 2D Artist for Behaviour Interactive, working on PlayStation, PC, and Dreamcast games for Konami, Disney, and Infogrames. Some years later, after briefly working for Digital-Fiction, he joined Ubisoft, working as the Art Director on the Splinter Cell franchise. In 2007, he joined the Deus Ex: Human Revolution team as the Technical Art Director, switching to Production Manager in 2008. In 2011, he finally went back to art, taking on his current position as Art Director.

@TheNameless

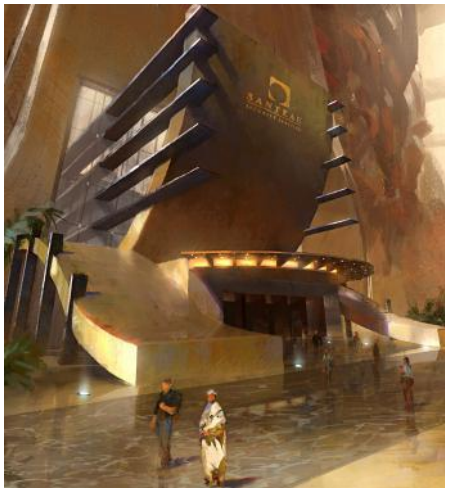
To give you a bit of background about myself: I worked as Production Manager on Human Revolution, but my previous experience in video games was in art direction. The perspective of going back to my earlier interests was enticing, and the opportunity presented itself. Thus, I took the role, fully conscious of the huge challenge that lay ahead of me.

Following the release of Deus Ex: Human Revolution and a well-deserved rest, we started creating what we know today as Deus Ex: Mankind Divided. Morale was at an all-time high: Human Revolution's critical acclaim literally gave us wings.

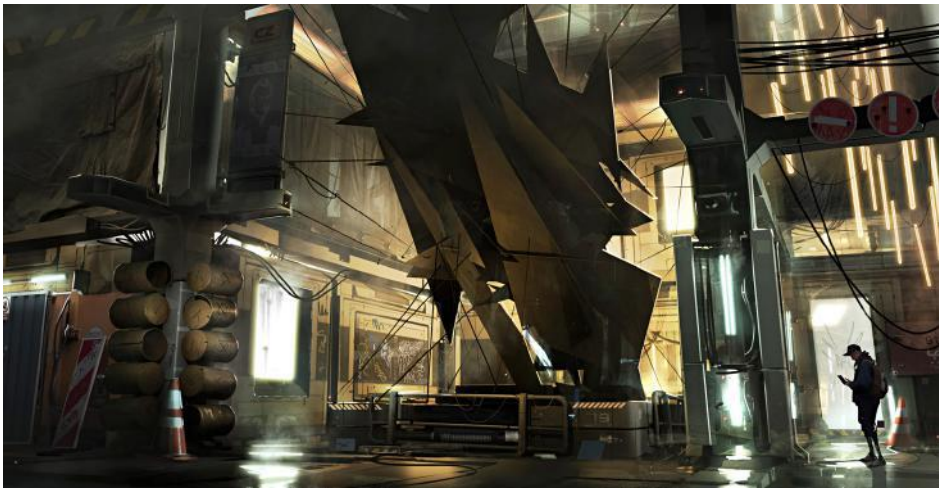
Everything came together quickly. Some members of the team got new responsibilities, while new directors joined. New technologies were being developed. A lot of »new« that we needed to get used to. Sometimes, I had the feeling we were making the same mistakes we made a few years back, during Human Revolution. As the Spanish philosopher George Santayana once said: »Those who do not remember the past are condemned to repeat it.«

The first two years were rather difficult, and we had to course correct a few times during the project – sometimes to a drastic extent. Having to throw away some of your work can be very unnerving, especially when you've poured your heart into it. In the end, these changes allowed us to improve the final game, and we all learned a lot. Despite those challenges, the team soldiered on and eventually developed great chemistry.

In retrospect, the artistic production went along quite well. Of course, we had to face



Early concept art for Deus Ex: Mankind Divided.



Deus Ex takes place in a futuristic, but believable cyberpunk world.

some occasional challenges. Don't be mistaken: a production of this scope isn't always rainbows and butterflies. Thankfully, despite these challenges, the talent, and professionalism of our art team always managed to take us where we needed to be, with a tremendous degree of quality.

Art Direction

In terms of art direction, my goal was to bring a new visual workmanship to this dystopia, while staying faithful to the previously established basis. With the segregation of augmented citizens as a central theme, we were dealing with a much darker setting than the previous title. I had to find a way to visually support and amplify this message.

Very early on, we explored visual language cues derived from the Middle Ages (see Corporate Feudalism below). It represented a nice regression from the Cyber-Renaissance setting seen in our previous title. With a societal collapse as the running narrative, our visual universe had all the reasons to offer more contrasts and to make different elements clash together.

Here are a few examples illustrating this contrast:

- An alluring touristic district during the day, becomes a red light district during the night.
- The immensity of the Utulek Complex (aka Golem City) conflicting with the narrow streets of Prague.
- The juxtaposition of anti-Aug and pro-Aug characters.
- The Cyber-Renaissance and the Corporate-Feudalism stylistics.
- Prague's old architecture versus its modern architecture.
- An environment where you only find corpses under a paradisiac sun.

My associate Dominique Demers and I thought long and hard about the role colour would play in the cinematography of the game. We knew that Human Revolution's use of the colour gold was an integral part of its visual signature, and therefore part of its brand. We were both convinced we could use the colorimetric spectrum to translate the emotions we wanted to evoke. Regardless of the established look of the Deus Ex universe,

This image represents concept art for a street in Prague, one that featured shops during the day, but transformed into the red light district during the night.

Here you see the color script from Mankind Divided. The team wanted to create its own visual language to evoke certain emotions.

with fresh themes and a new narrative in hand, we set out to develop our own visual language. We accomplished this by creating a full portrait of the game as colored vignettes (something we call a color script). The beauty of this process is that, during our exploration, we found an emotional justification to include the signature gold from Human Revolution. This allowed us to support the memory of its era throughout Mankind Divided.

The Tour de Force of Designing a Credible Future

Since our intention was to create a credible but dark near-future setting, we needed to constantly inform ourselves and identify key aspects from different creative fields: architecture, sociology, mechanics, urban design, fashion design, interior design, product design, and so on. It wasn't an easy task, considering all these fields require the absorption of very wide breadths of knowledge; something that would prove difficult under a tight production schedule. From all these fields comes a multitude of precise rules. People subconsciously assimilate many of these visual rules from their environment. It is impressive how a spectator, without being able to give concrete explanations, will notice when these rules are broken, feeling that something isn't right or seems like fantasy.

In order for us to »keep up«, one solution was to specialize each concept artist in a specific field, to ensure a homogeneity and a visual consistency, which helped support and maintain the credibility of each and every one of the artistic assets.

It was critical at this stage for us to develop our own interpretation of the future, which was achieved by drawing from current facts and trends. This was a much more daunting task than pulling already existing interpretations from another creative field (cinema, comics, etc.).

Corporate Feudalism, a post Cyber-Renaissance Era

The Cyber-Renaissance, a visual metaphor representing the golden era of augmentations, was now part of the past. However, the idea came up to create a signature contrast with this movement. In the era where social fracture, mysticism, and extremism became a reality, everything was in place to portray this regression towards Corporate Feudalism.

The concepts of emotion, creativity, substance, and elegance are replaced by those of reason, fear, dogmas, and function. That's why, early on in the process, we were drawn to cold, raw, and opaque materials to symbolize this regression.

Two more pieces of artwork, the left detailing a section of the Swiss Alps from the game, and the right showing off Deus Ex: Mankind Divided's futuristic interpretation of Prague.

Prague was an excellent city to develop this direction. Its secular, modern – almost brutalist – architecture offered a perfect foundation for the juxtaposition of monuments. It would have been a big mistake to completely modernize the city, considering the richness that has been organically created from contrasts from in its history, of which we were able to take advantage.

One other important aspect of the Corporate Feudalism was the design of characters; more specifically the police force.

In our previous game, we often represented combatants' specific abilities with intracorporal modifications. Our visual approach of representing a technological regression didn't fit with this idea anymore.

As a reference, we used knights from the medieval era. They were an excellent source of inspiration for the regression happening in the world of Deus Ex, and were in direct alignment with our Corporate Feudalism codes. We then replaced augmentations with exo-skeletal elements, signaling an even further step back.

During the early stages of defining the art direction for the game, the team became drawn to cold, raw, and opaque materials.

Advice

Here is a list of practical tips I learned over time. I hope they can be of some use to you:

- Take a minute to listen to the less vocal members of the team. Just because they are quiet, doesn't mean they don't have some profoundly useful insights/feedback.
- Surround yourself with people better than yourself and treat them as such.
- Trust yourself and always stay true to the established visual foundations. Over the long course of a production, it's actually quite easy to find yourself wandering off course. If you're not careful, you could find yourself making a completely dull game, devoid of all the amazing direction you planned.
- During the design phase, defining what you DON'T want is just as important as defining the things you DO want. This will help clarify the creative limits more precisely (this will be your sandbox).
- Self-censorship, based on your production knowledge, can deceive you. Don't be afraid to push into uncharted and/or uncomfortable territory.
- Make sure your art direction, and the graphics technology backing it, will still be relevant upon release, particularly when comparing it to the competition. Plan for the future ...

Finally

I wish to thank, for their invaluable help, my associates, my art directors, concept artists, level artists, lighting artists, character artists, VFX artists, as well as the marketing team and all the managers who made sure this was a well-oiled machine.

Martin Dubeau

GPU FRAME EXPLORATION IN DEUS EX: MANKIND DIVIDED

Eidos-Montréal's Lead Rendering Programmer goes into detail on how their engine renders a single frame in Deus Ex: Mankind Divided, along with how many steps are necessary to create the final image.

Jean-François Dufort is Lead Rendering Programmer at Eidos-Montréal.

Jean-François is passionate about 3D rendering and simulation, and has a strong background in computer graphics, which includes rendering, modeling, or image processing/post-processing effects for movies and video games. Before joining Eidos-Montréal, he had been active in industrial and academic R&D to develop techniques for offline rendering. In 2011, he joined the team at Eidos-Montréal as a Senior Graphics Programmer, but has since become the Lead Rendering Programmer, a position he has held since 2012.

One of the greatest feelings in video game development is to witness the different visual elements coming to life, one layer at a time, to create a rich entertaining scene within a couple of milliseconds. The underlying equations and mathematical models working together to simulate what we see with our own eyes, but reproduced inside a little metallic box for pure enjoyment, greatly nourish one's curiosity and sense of wonder. On top of that, when used accordingly, the same rendering steps put in the hands of artists can convey a message and touch millions of people that thrive for the final images.

Those are the different challenges, and excitement, I was looking for when I started my career and studies in rendering. Being on the mathematical side of the spectrum, I had to fully understand the different ingredients that went into the creation of those pretty images we see in the digital world.

In this article, we embark on a very short journey ... 33 milliseconds long to be precise. We would essentially like to provide you with an overview of a typical Deus Ex: Mankind Divided (DXMD) rendered frame. We will describe the different render passes, in chronological order from beginning to end, that went into creating the final image seen on screen, providing a description of each pass and its purpose. We will also add some inside information regarding the history of DXMD's production, along with how it influenced what you ended up seeing on screen. Ready? Go!

At First, There Was Geometry

As we all know, the backbone of any image rendered in real-time is a lot of triangles. The efficient processing of those triangles is essential to reach our performance goals, without sacrificing the visual quality of our 3D models. The first part of our frame is used to compute different kinds of geometric information. While most of the game assets are static elements, some of them use different animation technologies (clothing, hair, empir-

ical animation, skinning). Also, there's a great deal of information that we need to acquire from the geometry itself to feed the lighting passes later down the pipeline.

First, we launch a couple of compute shader jobs to process noisy animations and hair. The noisy animation system is a very lightweight animation tool, designed to simulate natural, noisy movements that we witness in nature. The basic idea behind it is to have a sum of sinusoidal waves with different frequencies, phases, and amplitudes to move vertices around, giving the appearance of natural oscillation. Of course, these parameters can be modulated with geometric data, like per-vertex weight, to mimic hooks and attach constraints. While very simplistic, our artists used this tool to imitate wind and other disturbances on fabric-like models.

Hair simulation is an in-house technology, based on AMD's TressFX, which decouples the hair simulation from the actual rendered hair strands. While noise simulation for hair has been used before in video games, a real hair simulation algorithm provides much better results for our characters.

Our engine uses a fat g-buffer, without a depth pre-pass, to find the visible surfaces that need to be shaded. We chose to decouple the processing of the aforementioned vertices jobs from our main geometry pass, mainly because we wanted more granularity in jobs, in effect making better use of the asynchronous nature of modern GPU's. However, our traditional skinning of geometry happens during the vertex shader stage of the g-buffer pass, but we're exploring ways to reduce the vertex shader stage in favor of more compute shaders.

Our g-buffer contains all the information required by our lighting model to shade the pixels: depth, normal, albedo, reflectance, roughness, etc. Our main objective when going from IO Interactive's Glacier 2 to Eidos-Montréal's Dawn Engine was to improve physically based shading. While we changed the lighting algorithm (more details on that later), we kept the g-buffer approach. Each object is being rendered in multiple render targets, encoding the required data on the fly.

While most of the data can be precisely and directly stored in our render targets, midway in

The team implemented a collection of specialized lighting shaders (shading models) that split incoming light between direct lighting and indirect lighting.

Artistic decisions and performance constraints may limit what the team was able to achieve, but Deus Ex: Mankind Divided was still designed to deliver the best possible experience to the players.

production, we noticed a lot of artifacts in our lighting using a naïve normal encoding strategy, mainly because of numerical imprecision and the usage of the wrong numerical range. To fix that, we switched to octahedral normal encoding. It's a clever trick to maximize the bit usage in a three component vector. Essentially, we transform the vector in a different base, mapping each normal vector to the faces of an octahedron instead of a sphere.

In opaque geometry rendering, we need to render front to back to populate the depth buffer and to reject occluded pixels at an early stage. Furthermore, an important portion of the screen is covered by opaque first person geometry, like the gun, so we render that part first, using the stencil test to reject geometry that is otherwise hidden behind it. Our semi-transparent HUD prevents us from using the same strategy with user interface elements, but it's something to consider for future production, depending on specific needs.

Finally, our g-buffer pass is used to blend and modulate the content of existing geometry, increasing visual complexity without raising the cost of geometric processing. Some good examples of this are decals that are added on top of geometry, where either the diffuse albedo or the normal to simulation variation of the underlying surface is changed, all without paying the price of fully rendering it again (or tessellate it to the extent of the decal details). The last type of blending we implemented is something we call soft intersection. It is used when we want to blend very fine details, like granular materials (e.g. sand or snow), on top of opaque geometry, without using alpha blending. In real alpha blending, we would light both the ground material and the top layer, then blend the result. Instead, to achieve a similar effect, we blend the overlaying matter with the destination g-buffer content based on distance, and only light the resulting pixel in the lighting pass. The result is that, when the granular material is »far« from the main environment geometry, we use its full information for shading. However, as it gets closer to it, we will gradually blend its shading info with the g-buffer material properties for final shading.

Before we move on to the actual lighting system, we must add three other layers of information that are closer to our production needs. First of all, we render in another buffer: the velocity of objects during the current frame. The velocity is used for motion blur on our PC version, but is also used during our anti-aliasing pass to project the pixels of the current frame into the previous frame buffers. Characters are pushing the last two pieces of information. To get an approximation of skin thickness, we render the skin portion a second time, which is used in subsurface scattering. Finally, all pixels covered by characters are specially flagged to be artificially lit by a dim aura, adding a subtle contrast between characters in dark sections of the game and the characters themselves, mainly for gameplay reasons.

All these geometry passes could eat a huge portion of our 33 millisecond budget, but thanks to efficient visibility culling, we only spend precious clock cycles on visible geometry. In DXMD, visibility culling is performed by Umbra's Occlusion Culling SDK. Taking the static environment as an input, the software computes a data structure, which can be queried in runtime, to know which models are visible. Therefore, only the visible objects are sent to the GPU pipeline. Our runtime queries use the static scene, along with a combination of bounding volumes, for dynamic geometries. The dynamic models are sorted in a coarse spatial structure. These high-level cells can be checked for visibility against the low-resolution occlusion buffer provided by Umbra.

Let There Be Light

Now that we know all about the visible geometry in the scene, it's time to add some lighting effects and shade the pixels. As previously mentioned, physically based rendering was very important to us when nailing the material tangibility required by our game. To achieve this, we implemented a collection of specialized lighting shaders (shading models), splitting incoming light between direct lighting and indirect lighting.

In rendering, we often approximate lighting interaction with a linear combination of different phenomena. Energy emits from light sources, then it interacts with surfaces by being reflected, absorbed, or transmitted until we measure it using a sensor. In our engine, we categorized all light interactions as either direct or indirect lighting. The lighting pass accumulates all light that reaches the eye in an additive buffer, with the stored value being loosely based on radiance, then it is split in RGB channels.

Graphics quality in Deus Ex: Mankind Divided not only improved in terms of visuals when compared to Deus Ex: Human Revolution, but also in terms of details and the interactivity of objects.

Direct lighting is the light that has exactly one interaction between emission and measurement (or zero interaction when the camera is looking straight at an emissive object). In DXMD, direct lighting for opaque objects is implemented with a tiled lighting approach, with specialized shaders being used for particles, skin, hair, and alpha blended objects.

The tiled lighting algorithm consists of creating 3D frustums of space, bounded by 8 by 8 pixel wide tiles on screen, and the min/max depths of the tile in the view space. Each frustum is a little bounding box of geometric content in the world, and we can perform intersection tests against the light sources in the game with them. Each tile collects all light sources that affect it in a gathering phase. Then, in the shading phase, we use all of the lighting information to shade visible pixels within the tile. Since this pass is only used for opaque geometry, we use a simple shading model based on Cook-Torrance BRDF, using material roughness and reflectance to compute radiance reaching the eye. Since it uses a more complex BRDF, skin is the only opaque exception to this rule, which will be described later.

The data structure we build for opaque tiled lighting is used again to create two extra sets of light collections. The first one creates frustum in the same fashion, but is split in the z direction with multiple planes. We end up with more frustum covering the full eye frustum in 3D, and can use it to light alpha blended objects. Each alpha blended material has an extra alpha component to simulate light transmission. Before we reflect visible light on an alpha blended object, we remove the proportion of light (1-alpha percent) that passes through. The balance is used as incoming radiance for the same BRDF as opaque objects. Of course, light transmission is computed both ways, and light entering from behind and hitting the camera is approximated by the traditional alpha blended equation, with a back to front sort. The second data structure for light query we create is a very low resolution grid, comprised of spherical harmonic probes, to create lighting for particles and rain. The net effect is that, in a 3D grid covering the whole world, very dense particles can use a fast lookup to get an approximation of the incident light.

Skin and hair are given special treatment in the engine. During the opaque pass, skin shading simulated subsurface scattering, achieved by changing the Lambertian term of the BRDF with a precomputed equation, integrates shades of red on the surfaces that are not pointing directly in the normal direction of the light. Also, to further create attraction points for the player eyes, characters are artificially lit with specular highlights of non-existing lights. While this completely breaks energy conservation, it makes characters more interesting from a gameplay mechanic point of view. Comparatively, careful integration of hair had to be done in the scene because of its very fine nature. Hair polygons are rendered, but in order to be lit, only the first two hair strands per pixel are kept in a data structure. The assumption here is that the most important part of hair lighting happens between those two layers, and the rest can be approximated with a constant. Finally, the two shaded pieces of hair can be blended within a pixel to reduce aliasing. Just like the skin, hair shading uses its own BRDF augmented with an explicit anisotropic term.

When sampling the light source to compute lighting, we have to use a visibility term to prevent adding light that doesn't reach the surface from being shaded (shadowing). In DXMD, we decoupled light sources from shadow casters, allowing artists to bind many light sources to one shadow casting transformation. While it distorts the shadow, it's a very efficient optimization, and simulates many shadow casting lights with only one shadow map. To optimize further, we kept static shadow maps in a special cache and reused them to update the dynamic occluders, frame

The team even worked on completely new technologies, such as a sophisticated hair simulation for Adam Jensen.

after frame, without computation. This allows us to easily integrate the shadow map update to our LOD system, preventing the dynamic update of shadows that are far away from the player. For indirect lighting, the occlusion term is usually approximated with some form of ambient occlusion, losing directional information (i.e. it's integrated over hemisphere above the surface). Our screen-space ambient occlusion (SSAO) algorithm, removes some of the indirect lighting in the scene while still keeping the direct light contribution intact. A common complaint from artists was the lack of contact of some objects on their support, especially when lit by a non-shadow casting light (for performance reasons). To reduce these artifacts, we created a directional occlusion that could be applied on direct lights, and used the SSAO on indirect light. In the end, we decided to combine the two occlusion passes and apply it on all light sources, which helped to reduce GPU costs. Objects feel more grounded with this cheat, even though it removes energy where it shouldn't.

We categorized energy in indirect lighting when it went under more than one interaction before reaching the sensor (eye, camera). To simplify the lighting equations, we again split the indirect lighting into diffuse (or ambient) and specular lighting, done in order to mirror the two parts of our main BRDF.

Diffuse indirect lighting is baked into a collection of high density spherical harmonic probes. Offline, we automatically populate the scene with thousands of cube maps, convolved with a perfectly diffused BRDF, and project them into spherical harmonic space. At runtime, each visible pixel queries the spatial data structure of probes, identifying which are the closest, and then interpolates its diffuse indirect lighting term using its normal as a parameter.

The specular highlights are collected from four different subsystems that, from a spatial point of view, are increasingly coherent. With a custom cube map applied on the material, very important objects can completely override the indirect specular reflections. Unfortunately, this breaks the dependency between the materials final look and the lighting conditions, but in highly controlled scenes where the reflections are very important, it may be desirable. If the material doesn't override specular reflection, we rely on other algorithms to compute indirect specular reflections. Screen-space reflection (SSR) uses a clever ray-tracing algorithm in screen-space to try and fetch the correct indirect reflected color. In our implementation of SSR, we shoot many rays in a cone, with width dependent on the roughness of the material, and average their hit color using the BRDF of the material. While this approach can lead to some noise (reduced by the temporal antialiasing), it has the advantages of reducing false intersections. In the event that SSR fails to provide a hit, we must rely on a cube map at the pixel location, fetched in the mirror direction of the view vector. Cube maps are placed in the scene by the artists, and different mip-map levels encode pre-filtered versions of the environments, resulting in different roughness parameters. The final indirect specular light sources that are placed in the scene are impostor reflectors, forcing some reflections to appear independently of the scene content.

The algorithms we implemented were a series of compromises between energy conservation and artistic visual goals. Until now, we always assumed that radiance was constant in space, and no energy was lost or scattered from emitter to surfaces. An important aspect of DXMD's art direction was light scattering within the environment. During production, we implemented many different algorithms to support single scattering of light (i.e. emitted light scattering only once toward sensor in a participating medium). The early prototypes relied on analytical solutions, but were too constraining. Instead of the scattering itself, we also tried using a shadow volume approach to extrude light occlusions, simu-

For the release of Sony's PlayStation 4 Pro, the team released an update providing support for both HDR and 4K resolution.

lating the »absence of scattering«. Results were interesting, but suffered from artifacts due to tessellation of the extruded volumes. The final two approaches we tried were a raymarching approach in a pixel shader, in which scattered light would have a numeric integration, and a light diffusion inside a 3D grid that was aligned on camera, similar to light propagation volumes for real-time global illumination. The raymarching would step N times in the participating medium, adding contribution of in-scattered light, and removing absorbed light all along the ray. Despite the results being extremely precise following real single-scattering equations, the trade-off was to drop both this technique, and some precision, in favor of having more scattering light. In turn, we ended up using the light diffusion algorithm, as the GPU costs were lower for a greater number of lights.

On the PlayStation 4 Pro, the overall resolution has been increased, aliasing reduced, all without compromising the frame rate or the overall gaming experience.

Let's manipulate those Pixels

If we would stop the rendering of our frame here, we would show the player a radiance buffer in energy space without any alteration. The Dawn Engine offers multiple tools to manipulate the final displayed color on screen, based on the energy computed during lighting. Some of these tools add fake effects on screen, others manipulate the frequencies of the final image, and the last category adds extra information to the player.

Before it can be displayed, the image has to go through a tone mapping operator, which serves the purpose of remapping the wide range of energy in the scene into a displayable range on regular monitors, or even HDR TVs on more recent hardware. This step converts the energy values into colors that can be manipulated with color LUTs. Also, depending on the energy values, we artificially add lens flares, glares, chromatic aberration, and other lens based artifacts that augment the feeling of seeing the game through a camera. These manipulations increase immersion from a cinematographic point of view, but also influence the emotional response of the player when, based on the game state, contrasts or tints are added to the scene (i.e. high intensity leads to more contrasts or warmer tones).

Because we use no hardware support for multisampling, the image needs proper in-house anti-aliasing. Our implementation is a temporal anti-aliasing solution, where every pixel of the current frame is projected back in previous frames, and is then blended, with some weight of confidence, according to how much we're correctly blending spatially coherent data or just blending in wrong values. For example, wrong values could appear because of trying to fetch the color of a surface that wasn't visible in previous frames. The heart of our temporal anti-aliasing resides in a good metric to decide how much to blend the current pixel color (which is always valid) with the previous frame's pixel value (which could potentially be wrong). All this blending removes the very high frequencies from the frame to prevent under sampling and aliasing artifacts, but it can be very aggressive. To counter balance it, we added a little sharpening filter to boost high frequencies that are still visible in the anti-aliased frame.

The final image manipulation we add on top is solely used for gameplay purposes. Some effects are needed to guide the player in his many options that DXMD offer. For example, depending on the choices of augmentations the player unlocks during their play through, we added some UI elements on screen, such as outlining objects that can be interacted with (e.g. ammo, cabinets, etc.). We even transformed the colors of objects, based on their types, to clearly show where the threats were on screen, or where the weak points of enemies were located.

Conclusion

There we go! It was a long short journey from simple polygon description to final pixel color on the screen. Remember that most of the choices were guided by artistic decisions and performance constraints, all with the goal of ensuring the vision of delivering the best possible experience to our fans, within the 33 millisecond rendering time constraint, was achieved. In order to create the great images our players expect to see, we continue to upgrade our rendering technology, with the goal of using it in our future projects. Of course, when we play and enjoy the game, we don't think and analyze all these details in real-time. One can sit back and enjoy the final result and play the game as, in the end, it matters most. However, we hope you enjoyed the ride with us as we went down the GPU pipeline of one frame of Deus Ex: Mankind Divided.

Jean-François Dufort

FABRAZ
A STORY OF DEVELOPMENT

Fabian Rastorfer explains how he and some friends founded their own studio in New York, and how one idea evolved over time to represent entire worlds.

Fabian Rastorfer
is Founder of Fabraz.

Fabian Rastorfer, Swiss by passport, grew up in international environments. He attended primary school in Cologne, continued his education in an International High School in Zurich and then graduated from Parsons in New York. Fabian founded Fabraz and actively works on all projects associated to the company. His primary skills are game design, graphic design and marketing.

When we were first approached for this article, we were asked one simple question: What is Fabraz? Fabraz is a video game company, but there's more to it than that. At its heart, Fabraz is a collection of developers with a passion, but it's also a collection of stories and worlds to many of our players. Worlds like those of our award-nominated »Cannon Crasha« or »Planet Diver«, enjoyed and explored by thousands worldwide. Most of all, Fabraz is simply fun (Trademark pending?)! To define what Fabraz truly is, we'd like to talk about how we got here and where Fabraz is heading next.

The closest Thing to Magic

At the beginning Fabraz wasn't any of the above, there was just me, a lil' kid called Fabian Rastorfer who really enjoyed video games. A kid who'd ride his bike as quickly as he could after school to play some »Super Mario World« or »Pocky & Rocky« with his best friend. There was just something about video games that seemed magical to me. One of my father's favorite anecdotes is when he asked me whether I wanted to become an artist, noting how much

A large poster showcasing the diverse and eccentric cast of Wild Wild Pixel (left) and one ingame screenshot showing a character in the swamp (right).

I sketched in my notebook during classes. My answer, apparently, was this: »Drawings are not enough to be entertaining.« He asked me what I meant by that after which I followed up with: »Today people want more than just drawings, they want moving images, music and sounds, they want to move in them!« And that's the key, really. Video games can put you in a space, they allow you to interpret that space but they also invite you into that space. A video game can tell a story like no other. It doesn't even necessarily need text or voices, the simple fact that a player can interact in an environment allows the player to derive context from it. It's ... the closest to magic, really. Little did I know that this was my first step towards becoming a full time, self-employed video game developer. The next was calling my character in »World of Warcraft« »Fabraz«, a combination of the first three letters of my first and last name. FABian RAStorfer. The S was changed to a Z, ironically, because I created a second character after Fabras.

Hundreds of Practices – and one Team to meet them all

I continued using Fabraz as a personal alias for all of my artwork up until High School, when the itch to create larger worlds and tell stories became strong enough for me to start my own webcomic called »The Tale of Aeria« in 2010. I wrote an entire manuscript and teamed up with an artist online called Songwut Ouppakarndee to release a page every week. The protagonist? Why, Fabraz of course! Suddenly Fabraz moved on from being my alias to having his own identity, Fabraz was now a character. A character that people started identifying with, who people followed every week to see what happened next. This was a fundamental change in how I, and the outward facing public, perceived the name Fabraz. The Tale of Aeria still runs strong today, with over 2,500 readers every day enjoying Fabraz' shenanigans. A webcomic was the first channel I needed to create worlds but it wasn't enough. The next logical step was to finally take the first leap towards proper video game development. I came up with a concept of two castles facing each other with a comically large cannon trying to destroy each other as quickly as possible, which eventually took shape as the game called Cannon Crasha. I wanted to see whether the concept had merit, so I posted some style frames to reddit.

An Idea only truly comes to Live once there is an Audience to appreciate it

It reached the frontpage within two hours, gaining over two hundred thousand views. This was all the confirmation I needed and I started seeking out a partner to work with. I was lucky beyond words to have met Markus Jost online,

The Team

Ben Miller: Ben Miller, American by passport, grew up in Boston. He acquired a bachelor from Eugene Lang and graduated with a masters from Parsons in New York. He became the second core half of Fabraz during the work on Planet Diver. His primary skills are game design, programming and puns.

Edgar Castro: Edgar Castro, American by passport, grew up in the Bronx. He graduated with a Design & Technology Bachelors from Parsons in New York. He was the primary tester for Fabraz first, but thanks to his design sensibilities, eventually joined the core team of Fabraz. His primary skills are level design, game testing and being the neutral arbiter between Fabian and Ben.

Markus Jost: Markus Jost, Swiss by passport, grew up in Zurich. He graduated from the University of Zurich with an Information Technology degree and worked with Microsoft Research on the »Path of Go«. He was the second half of the core team working on Cannon Crasha. His primary skills are game design, programming and being relentless about 60 fps.

Songwut Ouppakarndee: Songwut Ouppakarndee grew up near Bangkok, Thailand. He's done several breathtaking projects, involving anime and manga, and is the primary artist behind the Tale of Aeria. His primary skills are illustration, animation and a keen sense of narrative structure.

Screenshots from the game The Silhouetted Sovereign where the character is to encounter the mysterious being of the crown (left) and is looking upon a lost soul (right).

INFINITE FREEDOM
ASTRONOMICAL JUSTICE!
IN THE DISTANT FUTURE; THE YEAR 2021, TENSIONS BETWEEN THE VLASKOV KOMMONWEALTH, SUPREME GEM OF THE SOUTHERN HEMISPHERE, AND THE VICTORY EMPIRE, PROTECTORATE OF THE NORTH, HAVE RISEN TO A BREAKING POINT.
FIVE YEARS HAVE PASSED SINCE THE LAUNCH OF SAMOVAR V, AN INTERNATIONAL SPACE STATION SAFEGUARDING THE LAUNCH CODES OF THE PLANET-SIDE SUPER WEAPONS. THIS JOINT MISSION BETWEEN THE TWO RIVAL SUPERPOWERS, WAS DEDICATED TO THE PRESERVATION OF HUMANKIND, AND IS THE LAST GREAT HOPE FOR A PEACEFUL END TO A CENTURIES LONG STALEMATE.
NEXT

The left image shows the introductory cutscene of Mutiny on Samovar, while the right image is set aboard the Mutiny space station, seconds before our two soldiers try to outmaneuver each other.

an established and experienced game developer, who decided to team up with me. During those one and a half years of development, the game grew in scope, and our team grew with the inclusion of the two composers Mischa Perella and Red Ochsenbein. Now Fabraz was no longer my alias, nor was it simply a character. Fabraz now represented a group of people! This was another major change in how Fabraz was perceived and that became particularly clear when we were invited by Pro Helvetia to show off Cannon Crasha at the Tokyo Game Show in 2013. Journalists referred to Fabraz as a group of people, players asked if Fabraz had made any other games together. It was fundamentally exciting to see this shift occur, as it made Fabraz larger than life to all of us. Cannon Crasha released as a one dollar title in 2013. The game has been downloaded over 80k times since then and that number jumps significantly if you include pirated copies. It was nominated by Apple numerous times. It was a huge success!

Finding the right Partner(s) is Key for Success

During the last few months of development, I met Ben Miller in my college classes at Parsons in New York. He joined Cannon Crasha as one of the primary testers, and we quickly noticed how well we work together. In my mind, that was the next stroke of luck when it comes to Fabraz' history. Finding the right partner to team up on for these huge projects is very rare and Ben brought a new identity and perspective to Fabraz that was both challenging and infinitely rewarding. This was only reaffirmed through a collection of smaller game projects that we worked on together for fun, such as

The Tale of Aeria

The Tale of Aeria is set in a world occupied by endless sky. Scientifically-minded humans survive as nomads, wandering these endless skies until discovering a new home in the floating island of Aeria. However the island already has residents – the spiritual race of beast-folk called the Amarog. The two races clash in a great war, leaving the Amarog as second-class citizens. The story-proper begins hundreds of years after this conflict, following Fabraz, a unique human able to make use of the Amarog's shamanistic powers. Fabraz could care less about this distinction however, content with his carefree life with his adoptive family: the Jackal Sky pirates. Yet, all good things must end, and his powers will carry him through tragedy and into adventure.

GRUMBLE
BLUSH
Huh?! Woah, even I heard that!
Any louder and we'll get noise complaints. Man...
Here's the deal, get her to eat something and I'll get you some food too.
Sounds good!
Take them. I'll leave, she won't eat when we're around.

The Games of Fabraz

Cannon Crasha: Two opposing castles on one battlefield. Destroy each other with a comically large cannon, armed units and an armada of spells! See the destruction on each castle in real time and strategize your cannon shots by using the right artillery, watching the constantly shifting wind, and aiming for the essential parts of your enemies castle! Up the ante by rushing towards your enemies with strategically summoned armed units, and react to the enemy's actions with defensive maneuvers and spells!

Planet Diver: Planet Diver is about an adventurous daredevil tackling her newest obsession: Interstellar wingsuit diving. With her close robotic companion Buddy she'll travel across space to seek out the most dangerous planets and their respective chasms to dive in.

Slime-san: Slime-san was minding his own business, sliming around in a peaceful forest when suddenly ... A giant worm appeared and gobbled him up! Now deep within the worm's belly, Slime-san has to face a difficult decision: Be digested by the incoming wall of stomach acid ... Or jump, slide and slime his way through the worms intestines and back out its mouth.

»Wild Wild Pixel« and »Silhouetted Sovereign«, which we show off on our website, and we both decided to file a company together after graduation – the final step.

One is never enough – when creating Worlds becomes Part of your Life

Fabraz now represented a group of people across the world, it now was a company that created games. Soon we were joined by Edgar Castro, another classmate turned game developer from Parsons. We moved into an office space and started up our now industry-standard 10 to 12 hours a day schedule. We worked intently on old projects and new large projects or jam games. We were and continue to be excited to create the games we're passionate about. It was around the time we got settled into our new office when we came up with our next game: Planet Diver – a game about a daredevil addicted to wingsuit diving in space!

This game was meant to be a multi-platform release from the start – a lofty goal, releasing both on mobile and PC at launch. We had to iterate on the core game concept several times to get past many of the hurdles we encountered. For one, we wanted to create a game that can be played with one hand on the subway, yet, remains engaging and challenging on PC. The obvious answer was an endless runner, but the genre was already too well trodden, so how did we differentiate ourselves from others? Control over how fast you went instead of it being the primary escalation of difficulty. Missions that

Screenshots from Andari Prime, where an andari, a race of shapeshifting aliens, enjoys the view high atop a skyscraper (left) and where the protagonist is aiding the demolition of a town district (right).

Impressions from several conferences and trade shows.

gave you specific goals with an endless run as a secondary game type. We also had to make sure the game scales well between the two platforms. Difficulty had to be manually tailored for each, unique menus were created for vertical phones versus horizontal computer screens. The closer we got to launch, the more we started to become active with gaming conventions.

Learning from Players and Developers – the Importance of Events

I cannot state enough how fundamentally important these events are. We had booths for Planet Diver at Game Developers Conference (GDC), gamescom, Casual Connect, Momocon, Playcrafting and more. It introduced so many people to our games, but it also let us engage with players personally, and see what impact our games had on their lives! We saw which jokes landed, where players excelled or struggled, and take that knowledge back with us. There's also nothing more satisfying or mind-blowing than people telling us that the humor and positivity found in Planet Diver cheered them up when they felt down. We feel the most fortunate, however, to have met with so many other fellow developers. We've made real, valuable friends in this industry, and I have no doubt that we'll help each other grow even bigger! Planet Diver released as a 5 Dollar title in 2015. The game has been downloaded by over 20k players and sits at a 100 percent approval rating on Steam. It was also nominated as a finalist for the Indie Prize, twice, and the MomoCon Indie Awards. There was even a special collector's card that was bundled with the IndieBox service and it was part of the official selection at the Indie Arena Booth at gamescom. Another success!

Sometimes all you need is a good Laugh

We began work on the next game one week after the release of Planet Diver. At this point, making games is genetically hardwired in our DNA for everyone at Fabraz. And if you've been following us on Twitter, what that game is will be no secret to you: »Slime-san«! We've been very open during development; posting gifs every day, engaging with local events like Dan Butchko's Playcrafting, and attending larger conferences like gamescom. Thanks to that, we've already established a large fan base eager to get their hands on the game. We get especially excited when people like »Nitro«, a YouTube speedrunner, replay the first level for half an hour, just trying to perfect their high score! We've been told numerous times that people enjoyed the humor in our games and Slime-san's story is all about that. Slime-san is about a slime that was minding his own business until a giant worm appeared and gobbled him up. The choice is simple, be digested or slime through the worm's intestines, back out its mouth! This might be one of our most ambitious titles yet, in terms of scope. We're working with a sound designer, Britt Brady, who's making phenomenal sounds through the use of such complex tools as mashed bananas. No, really! We're also working with over 14 composers, including chiptune giants such as Adhesive Wombat, Tiasu and Inverse Phase to create a soundtrack for the ages!

Last but certainly not least, we've teamed up with Headup Games as our publisher to get the soundtrack on Vinyl and the game onto the PS4 and Xbox One. Fabraz now encapsulates more people than ever and we're so excited to release Slime-san in April 2018! It was already part of the phenomenal Indie Arena line-up at gamescom, and was a finalist at the Indie Prize in Tel Aviv.

Passion alone does not guarantee Success

We're so proud of our past and are incredibly excited to see what awaits us next. While Fabraz developed into what it is today, the video game industry has also fundamentally grown and changed. Kids now grow up surrounded by games, they go to schools that can teach to code. They're a rising generation interested and eager to release their own games as soon as possible, the creative capacity found in every other Minecraft video being just the tip of the iceberg. The entry point for creating games is lower than ever, with applications like Unity and Game Maker, and the threshold of releasing a title is lower, too, thanks to the App Store and Itch.io. Indie games now compete with AAA titles, for better or worse, and there are game conventions you can attend on a nearly weekly basis. That's exciting! But

also, slightly scary, as there are more games than ever. The market is downright saturated, so how do you stand out? The path that we at Fabraz took might not be replicable anymore. The most important thing is to persevere! Create the game of your dreams, test it with users, and make sure to not neglect marketing and networking as skills! Attend conventions, spread the word on social media, and stick to it no matter what! We have this one philosophy we always like to share with fellow developers: You have to work really hard to get into a position where you can get lucky. What do we mean by that exactly? It's useless to blame the lack of success on bad luck, but it's also naive to assume your success didn't slightly depend on it either. You have to work hard, every day, and try your very best to achieve success. To get into the position, where success could happen and someday it might!

The many Worlds the Future holds

So what's next for Fabraz? For now, we're all working hard on finishing up the whacky world of Slime-san to make sure it's oozing with personality. We've gotten incredible feedback from fans of our previous games and we want to make sure Slime-san remains a magical memory for them as well! We want to make sure that the game delivers on its promises and meets the expectations of our eager fans! The number of players we've gathered is simply staggering and yet, sometimes the smallest e-mail or video from a player touches us the most. E-mails like the one from a Japanese player named »Tomo«, who wrote us the following: »Planet Diver has caused in my heart fireworks of emotions!«. Or ten-year-old »Logan the Potatoe«, who plays the game on YouTube and giggles at every silly joke we throw at him. Small interactions like that truly make us happy, to have an impact on someone's life, no matter how insignificant, is just ... magical! Video games are just magical!

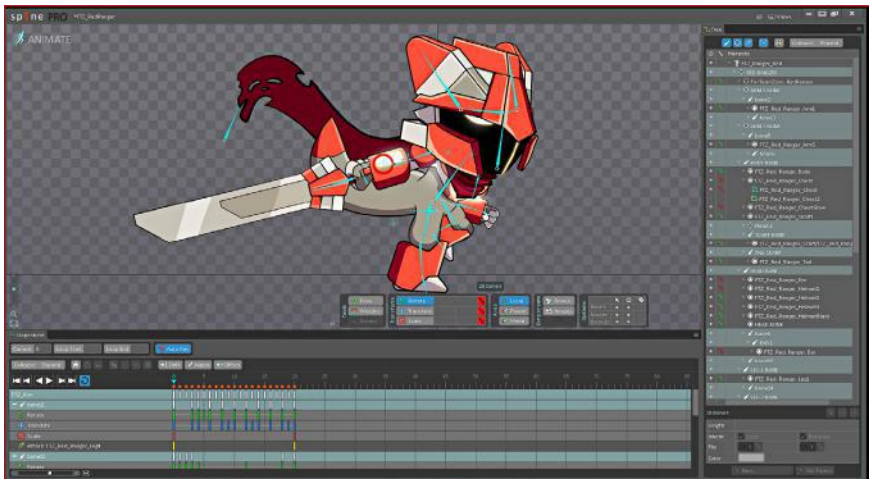
Next Stop: Fabraz' first Sequel

We'd like to thank Making Games for the opportunity to tell you a little about Fabraz and to finally answer the deceptively simple question of: What is Fabraz? As a final thank you I'd like to announce something very special: We're going full circle ... our next game after Slime-san will be Cannon Crasha 2! The concept will be turned on its head as this time two pirate fortresses will pit each other to establish who's the pirate king! I hope you tag along for all the crazy worlds we've yet to create!

Fabian Rastorfer

Tool recommendation: Spine

2D and 3D animation are often considered to be entirely different sets of practices, but Spine takes inspiration from 3D animation and applies it to 2D very effectively. It's still the new kid on the block, but it's already rapidly taking over the indie game industry as a primary tool for 2D animation. It takes the 3D concept of rigging up a character with a skeletal bone structure and allows the creator to then animate that skeleton how ever they please. Combine that approach of animation with efficient mesh warping to deform visual images, as well as sprite swapping to switch out assets mid-movement and you've got yourself one hell of an animation tool. Not only does it allow you to create several types of smooth animations, but you can also swap out the skins to reuse the same animations on different models. The fact that it can export to Unity seamlessly through their own APIs is simply the icing on top of an already delicious cake.
You can get Spine at **http://esotericsoftware.com/**



The core team looking tired but satisfied after several successful days at gamescom.

Fabraz' games Slime-san and Planet Driver were nominated for the Indie Prize in Tel Aviv.

SOUND-REBELL MIT LEIDENSCHAFT

Beim Soundstudio Phénix Noir Productions brennt das Feuer des goldenen Spielezeitalters. Was hinter dem Konzept seiner Firma für die Gegenwart und Zukunft der Games-Musik steckt, erzählt Musikproduzent Patrick Nevian anhand eines spannenden Einblicks in seine Arbeit.

Patrick Nevian
ist Inhaber von Phénix Noir Productions, Musikproduzent und Pianist.

Bereits 1987 begann Patrick mit dem Klavierunterricht, um sich im weiteren Verlauf auch Fähigkeiten als Songwriter, Produzent und Sound Engineer anzueignen. Mittlerweile arbeitet er erfolgreich mit bekannten Gesichtern aus der Musik- und Computerspielebranche zusammen.

Nur 880 Kilobyte! Das reichte damals für zwei richtig fette Tracks! Also eine Diskette im Amiga-DOS-Format. Und ohne den Amiga-Computer wäre ich jetzt nicht hier. Neben der klassischen Musikausbildung am Piano hat dieser Rechner meine berufliche Laufbahn maßgeblich geprägt. Die kleine Plastikscheibe von 1994, auf der meine ersten Gehversuche der digitalen Musikproduktion verewigt sind, funktioniert noch immer.

Damals hätte ich mir nicht träumen lassen, dass aus dem Hobby »Musikbasteln« mit dem Tracker-Programm »OctaMed« ein echter Job werden würde, bei dem ich heute noch meine Leidenschaft Computerspiele und Soundproduktion verbinden kann.

Im Unterschied zu den eher rudimentären Arbeitsbedingungen an Commodores Flaggschiff der 80er und 90er Jahre haben sich die Arbeitsweisen und Anforderungen heute natürlich stark verändert. Teilweise arbeiten wir bei Phénix Noir Productions an drei bis fünf Projekten gleichzeitig, oft mit sehr engen Terminvorgaben. Doch unsere Kunden wissen das seit den 90ern gereifte Know-how sehr zu schätzen. Es hilft, kosteneffizient maßgeschneiderte und trotzdem extrem kreative Arbeit abzuliefern.

Und genau darum soll es heute gehen: um den Reiz von Limitierungen bei der Soundproduktion für Computerspiele und die planvolle Umsetzung.

Natürlich ist es fantastisch, ein ganzes Symphonieorchester aufzufahren, um meine Arrangements begleiten zu lassen. Besonders reizvoll sind für mich jedoch oft Aufträge für Mobile oder Indie Games. Eben weil man im Gegensatz zu Orchesteraufnahmen mit Limitierungen und Einschränkungen umgehen muss ... fast wie zu glorreichen Amiga-Zeiten.

Die Mischung macht's!

Grundsätzlich ist vor allem im Mobile-Bereich Sorgfalt beim Mischen und Mastern von Musikstücken gefragt, weil die Ausgabe-Devices soundmäßig doch recht schwach auf der Brust sind und zudem in der Regel einen einsamen Monolautsprecher verbaut haben. Dennoch sind die Anforderungen hoch, dass auch eine angemessene Tonwiedergabe das Spiel an die Gamer bindet.

Je nach Genre des zu vertonenden Produkts sollten der Arrangeur und Sound Engineer

darauf achten, eine ausgewogene Anzahl an Instrumenten zu verwenden. Denn was nutzen bombastische Arrangements, wenn diese am Ende nicht adäquat über einen Low-End Output abspielbar sind? Eine gute Planung, wie das Soundmaterial mit dem Rest des Spiels korrespondiert, ist daher auch in dem kreativen Feld des Musizierens unabdingbar. Doch dazu später mehr.

Für die Digamore Entertainment GmbH hat Phénix Noir Productions das Managementspiel »Football Empire« vertont. Passend zur klar strukturierten und edlen Optik der Fußballsimulation sollte der Soundtrack aus poppigen Softrock-Songs bestehen, die Druck und Power haben, jedoch trotzdem angenehm in Schleife gehört werden können. Neben guten Arrangements spielte hier also auch der Gesamtklang eine große Rolle. Dumpfe, kraftlose Drums oder zu verspielte Sounds wären fehl am Platz.

Doch wie platziert man ein fettes Schlagzeug oder Gitarrensounds im Mix, sodass es zu einem guten Kompromiss für den Handyquäker oder die schwachen Tablet-Speaker kommt? Immerhin sollen die Soundfiles am Ende ja sogar noch qualitätsreduziert und speicherschonend im OGG-Format komprimiert werden.

Hier spielt tatsächlich der Bassbereich eine große Rolle, der zwischen dem Schlagwerk und den Gitarren steht. Weil ein Mobilgerät tiefe Frequenzen so gut wie gar nicht vernünftig wiedergeben kann, dürfen Sounds wie E- oder Synthi-Bass relativ viel Mittenanteil besitzen. Der Equalizer sollte jedoch nicht zu weit aufgedreht werden, damit es nicht unangenehm klingt und der User die Musik nicht genervt ausstellt. So erhält man am Ende einen nicht zu unterschätzenden Push für das Ohr. Denn nun ist es viel leichter, der Songstruktur zu folgen.

Auch bei den Gitarren ist in diesem Fall weniger mehr, denn nichts kratzt schlimmer am empfindlichen Trommelfell des geneigten Spielers als scharf klirrende Riffs. Also lieber harsche Frequenzen absenken und die Axt stattdessen bewusst mit einem Limiter dezent an die Wand fahren.

Auch der Drummer will wohlplatziert werden: Ein angenehmer Punch durch gute Kompression, die Beachtung unseres Bassbereichs sowie der Eigenschaften der Low-End-Mobile-Lautsprecher – eine nicht zu vernachlässigende Größe bei der EQ-Bearbeitung des beliebten Krachmachers – sind schon die halbe Miete.

Beachtung schenkt der Mobile-Musikus bitte auch den Flächen in einem Musikstück für portable Systeme. Synth Pads oder breite Streicherteppiche klingen im Studio beeindruckend. Das böse Erwachen kommt aber spätestens nach dem ersten Soundcheck auf den kleinen Monokisten. Denn wo auf großen Stereoboxen Flächen ihre wahre Magie entfalten können, fällt die ganze schöne Breite der Sounds hier kraftlos zusammen.

Um auf eine Anfettung der Melodie und des Gesamtklangs nicht verzichten zu müssen,

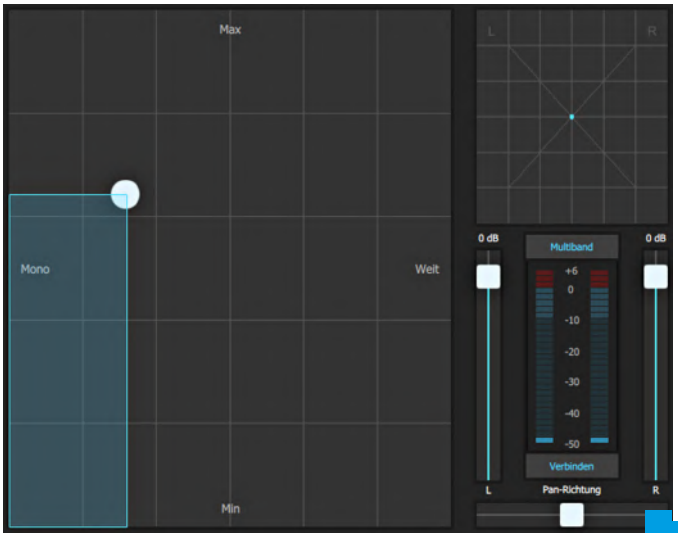
Sobald eine Wunschmelodie am Piano entwickelt wurde, beginnt das Arrangieren des Tracks in der Digital Audio Workstation (DAW).

lassen wir stattdessen lieber extrem breite und phasenauslöschende Klangfarben weg. Möchte ich ein bestimmtes Pad dennoch nicht missen, hilft es, die Stereobreite des Sounds in der Digital Audio Workstation (DAW) zu reduzieren. Weitere Feinheiten können zum Beispiel per EQ-Editing ergänzt werden, um klanglich so nah wie möglich an den originalen (Stereo-)Sound zu kommen.

All dies lässt bereits erahnen, dass es bei der Soundoptimierung für Mobile Devices nicht ausschließlich auf Authentizität und Perfektion im herkömmlichen Sinne ankommt. Sehr gute Fähigkeiten im Bereich Songwriting und Musikproduktion im Allgemeinen sind Grundvoraussetzung. Doch wie oben bereits erwähnt, dürfen die Eigenschaften der Zielplattform nicht außer Acht gelassen werden.

Optimierung im Mastering

Werden beim Mixing also erste wichtige Vorkehrungen beim Sounddesign getroffen, bietet



Während bei Stereoboxen die Flächen des Musikstücks ihre Wirkung entfalten, fällt der Sound auf den Monolautsprechern von Mobilgeräten kraftlos aus … doch auch hier lässt sich der Klang mit den entsprechenden Tools anpassen.

Verschiedene Werkzeuge der DAW erlauben es, den Sound den technischen Gegebenheiten anzupassen, etwa durch Kompression der Drums (oben) oder durch Bearbeitung des Masters (unten).

das Mastering eine gute Gelegenheit, das vorhandene Material optimal zu finalisieren. Die Bearbeitung des Summensignals ist seit jeher krönender Abschluss eines jeden Musikprojekts.

Im Feld des mobilen Entertainments spielt besonders eine starke Limitierung des fertigen Mixes eine wichtige Rolle. Ganz nach dem Motto »Hauptsache laut« sollen möglichst viele Toninformationen gleichzeitig durch den Lautsprecher gequetscht werden.

Dank unseres ausgewogenen und behutsam gemischten Grundsounds können wir so mittels (Summen-)Limiter gefühlte Lautheit erzeugen, die dem Spieler hilft, unangestrengt dem Spielverlauf UND der Begleitmusik zu folgen. Natürlich bietet das Mastering noch weitere Möglichkeiten, auf den Sound des Finalmixes einzuwirken. Diese Ausführungen eignen sich jedoch eher für eine eigene Mastering-Workshop-Reihe. Im Zusammenhang mit unserem Thema heute taugt jedoch der Hinweis, dass man es mit dem Sound-an-die-Wand-Fahren nicht übertreiben sollte.

Denn sobald der Kunde das neue Kleinod der Game-Musik in seine ohnehin schon sehr speicherplatzsparende App pressen will, kommt der Sound Engineer in Zugzwang. Klang der Track bei 320 kBit/s noch schön rund, matscht er in 128 kBit/s doch arg die Gehörgänge der Nutzer zu.

Sollte also bei straffen Dateiformat-Vorgaben auch die Reduzierung des Limiters keinen hörbaren Erfolg in Form eines wohlklingenden Songs haben, hilft nur die Nachbesserung im Mix.

Kleiner Tipp am Rande: Gönnen Sie dem Kunden und den Spielern einen Stereo-Soundtrack. Denn sollte doch einmal der Kopfhörer als Soundausgabegerät dienen, lässt der qualitativ bessere Klang den Spieler tiefer ins Spiel eindringen und er lässt sich bestenfalls länger an das Produkt binden.

Und noch ein Tipp: Das Exportieren in speicherplatzreduzierte Formate wie OGG oder MP3 bietet jede DAW. Es gibt jedoch auch unzählige Freeware-Alternativen, die für das Komprimieren von Sounddateien bereitstehen. Für erste Tests reichen diese sicherlich aus.

Eine gute Produktion ist indes stets Grundlage eines jeden Musikstücks, bevor am Ende der Reise das schön verpackte Soundfile auf die Ohren der Gamer wartet.

Planung ist das A und O

Vorausschauende Planung ist also wie allzu oft das A und O und bewahrt auch den Musikproduzenten vor schlaflosen Nächten, zumindest was das Nachbessern einer Produktion betrifft.

Gut geplant werden wollen demzufolge auch (Musik-)Projekte, welche die heutige Gaming-Generation und klassische Computerspiele verbindet. Ein Projekt liegt mir daher ganz besonders am Herzen: die Arbeit für ein neues Strategie-RPG à la »Fire Emblem«, das gleichzeitig für PC und interessanterweise auch für AGA-Amigas entwickelt wird. Da fühle ich mich doch gleich wieder wie ein Sound-Rebell, so etwas aktuell verwirklichen zu können!

Auch hier will getrickst werden. So wie ich beispielsweise den Mix und das Master eines Musikstücks für Mobile Games so ausgewogen mische, dass alles selbst bei stark reduzierter, aber speicherschonender Qualität noch hervorragend klingt, hilft mir dieses Wissen auch, eine Dual-Entwicklung für moderne und über zwanzig Jahre alte Hardware umzusetzen.

Inspirationsquellen

In der Regel dienen Grafikkonzepte, erste Skizzen, eine lauffähige Engine oder das Storyboard als geeignete Inspirationsquellen, um die Richtung des Soundtracks zu bestimmen. Die Vorstellungen des Herstellers oder Programmierers fallen natürlich ebenso ins Gewicht. Ich sage immer: Das Sounddesign ist wie ein Kraftkleber zwischen der Optik und dem Spiel an sich. Es bindet die Atmosphäre und ergänzt das Spielerlebnis um eine wichtige emotionale Komponente, die bei der Vermittlung des Spielinhaltes hilft.

Als ich nun zu Beginn der Planungsphase als Sound Designer und Composer ins Team geholt wurde, lag das Konzept des Spiels zwar bereits vor, der Grafiker hatte seine Arbeit allerdings noch nicht aufgenommen. Mock-ups oder gar fertige Spielszenen standen somit noch nicht zur Verfügung. Dennoch wurde meine Vision, das Projekt zeitnah mit ersten Musikstücken in eine kreative Richtung zu bringen, begrüßt.

In diesem Zusammenhang ist meine Arbeit als Game Designer (ich habe zwei aktuelle Action-Adventures für den Amiga entwickelt) natürlich auch für den Job als Musikproduzent extrem hilfreich. So verstehe ich schnell, wohin

die Reise mit dem Soundkonzept für ein Spiel gehen muss. Selbst wenn noch keine oder nur wenige Grafiken oder sonstige Details vorliegen.

Nehmen wir also als Beispiel einmal den Track für die Kampfsequenzen des kommenden Fantasy-RPGs: Zunächst läuft alles recht klassisch ab, indem ich das geplante Setting in eine musikalische Form bringe. Es muss also eine energetische und spannende Grundkomposition her. Etwas, was das Thema »Kampf« inhaltlich würdig repräsentiert, einen hohen Wiedererkennungswert hat, aber nicht zu ausgelutscht daherkommt. Immerhin wird diese Melodie den Spieler noch stundenlang begleiten. Und dies soll selbst bei einem verlorenen Battle nicht zu frustrierend werden.

Habe ich meine Wunschmelodie am Piano entwickelt, beginnt das Arrangieren des Tracks in der Digital Audio Workstation (DAW). In unserem Fall werde ich Orchesterklänge mit Gitarrenriffs kreuzen. Nicht zu Power-Metallastig, aber schön kraftvoll, mit druckvollen Cinematic und Real Drums. Ob ich einen Chor einbauen werde, wird entschieden, sobald ich die Grafiken des Battle Screens zu Gesicht bekomme. Das audiovisuelle Erlebnis soll ja später aus einem Guss sein.

Nach einiger Zeit stehen also eine erste gute Mischung und ein Testmaster des Kampfthemas. Nun noch schnell das Audiomaterial exportieren und fertig … aber halt!

Besonders knifflig: Musik auf Retro-Computern

Dieses Projekt verbindet schließlich die Welten der modernen PC-Spiele und der stetig wachsenden und immer beliebter werdenden Retro-Gaming-Szene.

Wie bringe ich nun das bombastisch klingende Musikstück gekonnt auf Commodores Freundin? Zwar waren deren Soundfähigkeiten damals revolutionär, doch vier mickrige 8-Bit-Soundkanäle können leider keine orchestralen Klangwelten in angemessener Form wiedergeben. Vom vorhandenen Speicherplatz von »satten« 2 MB ganz zu schweigen.

Zwei Möglichkeiten kommen am Ende in Betracht: das Umwandeln des Tracks in ein ungepacktes Audiofile in 22 kHz/8 Bit. OGG oder MP3 mag der Amiga 1200 dank seiner kraftlosen 14 MHz CPU nun gar nicht. Diese Datei ist zwar recht groß, kann aber ohne Probleme gestreamt werden, wenn von CD-ROM oder Festplatte gespielt wird.

Oder, falls gar eine Diskettenversion umgesetzt werden sollte, beginnt die Zeitreise in die 90er Jahre erneut und verbindet auf fantastische Weise moderne Produktionstechniken mit der Audiowelt der Homecomputer-Ära:

Im Tonstudio suche ich die essenziellen Stellen des Kampfthemas, rechne die wichtigsten Spuren zusammen und exportiere viele kleine Sample-Stücke in ein Tracker-taugliches Format. So bleiben der eigentliche Sound und das Feeling mit einigen Abstrichen erhalten, wie dem Verlust bestimmter Variationen und des Stereo-Outputs.

Die Sample-Sammlung beinhaltet nun Drums für einen Kanal; Streicher und Hörner werden auf den zweiten Amiga-Sound-Output gelegt. Gitarren und Bässe teilen sich den dritten Channel von Paula, wie der Soundchip des Amigas liebevoll genannt wird. Den vierten Tonkanal lasse ich jungfräulich, denn dort sollen später noch Soundeffekte erklingen. Dann wird das Ganze wie schon damals im Jahre 1994 in OctaMed zusammengesetzt – et voilà: fetter Sound bei wenig Speicherverbrauch.

Auch wenn dieses Game-Projekt eine Ausnahmeerscheinung sein mag: Kreativität, innovative Konzepte und stimmige Lösungen sind auch im Audiobereich für aktuelle und zukünftige Projekte in der Games-Branche unabdingbar. Wer sich mit Limitierungen auskennt und die Grenzen des Machbaren verschieben kann, bietet moderne und kompetente Lösungsansätze, die sowohl dem Budget also auch dem finalen Output eines Projekts guttun können.

Patrick Nevian

Über Phénix Noir Productions

Phénix Noir Productions produziert zurzeit unter anderem die Musik für das kommende Mobile-Game Football Empire von Digamore und erstellte einen Remix für den Soundtrack des extrem erfolgreichen Rennspiels Horizon Chase. Nevian war zudem Arrangeur und Interpret der Chris Huelsbeck The Piano Collection. Neben weiteren Mobile-Apps steht momentan auch die Vertonung eines neuen PC-Adventures auf dem Arbeitsplan von PNP.

phenix noir productions

Das Mobile Game Football Empire ist ein Beispiel, für das Phénix Noir Productions die Musik komponiert hat. Passend zur klar strukturierten und edlen Optik der Fußballsimulation sollte der Soundtrack aus poppigen Softrock-Songs bestehen, die Druck und Power haben, jedoch trotzdem angenehm in Schleife gehört werden können.

UBISOFT MACHT BLUE BYTE ZUM PC-KOMPETENZZENTRUM

Zum 30. Geburtstag von Ubisoft waren wir im Deutschlandhauptquartier in Düsseldorf zu Gast und haben uns angesehen, an was die Siedler-Erfinder Blue Byte arbeiten.

Impressionen aus den Blue-Byte-Büros in Düsseldorf.

Im Jahr 1986 fassten Yves Guillemot und seine vier Brüder Christian, Claude, Gérard und Michel den Plan, einen eigenen Publisher für Videospiele zu gründen: Ubisoft. Sie schlugen ihre Zelte in einem Schloss in dem Örtchen Carentoir in der Bretagne auf und knüpften schnell Kontakte zu ausländischen Unternehmen wie Electronic Arts oder MicroProse, um deren Produkte in Frankreich zu vertreiben. Bis Ende der 80er Jahre wuchs Ubisoft zum größten Fisch im französischen Spieleteich heran, zog nach Paris um und fing in den 90ern schließlich damit an, eigene Spiele zu entwerfen und die ersten Studios zu eröffnen. 30 Jahre später haben die wenigsten Spieler wohl noch eine Ahnung davon, wie eines der heute größten Spieleunternehmen der Welt angefangen hat. Und weil es in der schnelllebigen Games-Branche nur vereinzelt Firmen gibt, die auf eine so lange Historie zurückblicken können, lud Ubisoft Deutschland Mitte Oktober Pressevertreter in seine Zentrale in Düsseldorf ein. Ziel war nicht etwa, ausschweifend Geburtstag zu feiern, sondern vielmehr zu zeigen, was die inzwischen 25 Jahre bestehende deutsche Niederlassung und allen voran Blue Byte genau machen.

Kleiner Anfang, großer Einfluss

1991, also rund fünf Jahre nachdem Ubisoft aus der Taufe gehoben worden war, öffnete Ubisoft Deutschland seine Tore – metaphorisch gesprochen. Seinerzeit ließen sich die ersten Mitarbeiter in Mühlheim an der Ruhr in den Räumen von Blue Byte nieder. Blue Byte war damals schon ein erfolgreicher deutscher Entwickler, Ubisoft dagegen ein nahezu unbekanntes Unternehmen. Heute residieren beide in einem Bürokomplex in Düsseldorf und Ubisoft Deutschland wird von rund 70, Blue Byte von knapp 300 Mitarbeitern (davon 200 in Düsseldorf und 100 in Mainz) am Laufen gehalten.

Ubisoft Deutschland beschäftigt sich dabei mit der Vermarktung und dem Vertrieb des Ubisoft-Portfolios im deutschsprachigen Raum sowie mit der Lokalisierung der Produkte. Doch was vielleicht die wenigsten wissen – ohne die deutsche Niederlassung und vor allem den heutigen Geschäftsführer Ralf Wirsing hätte Ubisoft eine seiner wichtigsten Marken gar nicht im Programm: Ende der 90er Jahre suchte ein junges Entwicklerteam aus Oberfranken einen Publisher für sein erstes Spiel. Wirsing erkannte das Potenzial, verknüpfte die Pariser Entscheider mit dem Team und fädelte so den Deal ein. Am Ende erblickte der Ego-Shooter Far Cry das Licht der Welt und Crytek wurde für seine technische Leistungsfähigkeit fast schon legendär.

Blue Byte stößt zur Familie

Ebenso legendär kann man Blue Byte und seine Marken Die Siedler und (inzwischen) Anno nennen. Denn selbst wenn ein Spieler mit dem Entwicklerstudio nichts anfangen kann, kennt doch jeder die beiden Strategiespiele, die in Deutschland schon immer einen hohen Stand hatten. Gegründet im Jahre 1988 erzielte Blue Byte mit Battle Isle und Die Siedler schnell Erfolge und gehört seit 2001 zu Ubisoft. Später, 2013, kamen Related Designs und die Anno-Reihe hinzu. Das Studio wurde kurz darauf in Blue Byte Mainz umbenannt, wo es auch seinen Sitz hat.

Seitdem werkelte die Mainzer Belegschaft weiter an der Anno-Reihe, während das Düsseldorfer Team hauptsächlich an Siedler-Projekten schraubte, jedoch ab 2013 auch mit der Entwicklung und dem Betrieb von Free2Play-Browser-Versionen der bekannten Strategiemarken betraut war. Doch damit ist nun Schluss, wie seit August 2016 bekannt ist. Blue Byte hat eine neue Aufgabe im Ubisoft-Kosmos bekommen: Das alteingesessene Studio soll das PC-Kompetenzzentrum des Publishers werden und künftig vermehrt die Umsetzungen der großen AAA-Konsolentitel übernehmen. Das erste Großprojekt ist For Honor, das am 14. Februar 2017 erscheinen soll, während Rainbox Six: Siege bereits seit längerem betreut wird.

Erster Großeinsatz: For Honor

Konkret heißt das, dass Blue Byte für den Shooter an Erweiterungen bastelt, gleichzeitig aber auch die Onlineplattform Uplay in Stand hält und sich um Live Operations kümmert.

Rainbow Six: Siege und For Honor sind die ersten beiden großen AAA-Produktionen, bei denen Blue Byte die PC-Versionen betreut. Bei letzterem sind die Düsseldorfer für die gesamte Portierung zuständig.

Die kniffligere Aufgabe ist die PC-Umsetzung des Actionspiels For Honor. Gerade weil der PC als Plattform gut ein Viertel aller Ubisoft-Verkäufe ausmacht, dürfte der Druck hier entsprechend hoch sein, aber zugleich ist der Schritt, Blue Byte diese Bürde aufzuerlegen, vermutlich der Richtige. In Düsseldorf sollen sich die Experten – immerhin sind Die Siedler, Anno und Co. traditionelle PC-Titel – nun um all das kümmern, was wichtig ist: von der Auflösung und dem höheren Detailgrad über Grafikoptionen bis hin zu Maus- und Tastatursteuerung, Modding-Tools und so weiter.

Blue Byte weiß hierbei ganz genau, was sich die PC-Community wünscht. Während Nutzer der Konsolenfassung ein einfaches Plug-and-Play-Erlebnis erwarten, wollen jene der PC-Version so viele Freiheiten wie möglich, um das Spiel ihren Bedürfnissen anzupassen. Das macht die PC-Entwicklung ungemein schwerer. Für die Konsolenfassungen legt der Entwickler fest, welche Leistung erreicht werden muss, um ein perfektes Spielerlebnis garantieren zu können. Der PCler hingegen möchte bis ins kleinste Detail selbst bestimmen, an welchen Schräubchen er dreht, um maximale Grafikbrillanz herauszukitzeln, die höchste Framerate zu erreichen oder irgendetwas dazwischen. Dazu kommt, dass die PC-Version selbstständig erkennen können muss, welche Hardware im vorhandenen Gerät verbaut ist und welche Qualitätseinstellungen dafür funktionieren, denn nicht jeder PC-Nutzer möchte zwingend anfangen, sich durch die Menüs zu wühlen, bis er loslegen kann. Das wiederum erfordert den ständigen Kontakt der Entwickler zu den Hardwareherstellern, damit der Titel mit den neuesten Treibern funktioniert oder die Hersteller eventuell in ihren Treibern entsprechende Optimierungen vornehmen können.

Am Ende geht es der Mannschaft bei Blue Byte darum, so vielen Nutzern wie möglich die neuesten technischen Spielereien zu verschaffen und gleichzeitig so viele PC-Konfigurationen wie möglich abzudecken. Daher weiß Blue Byte auch, dass es viel Testaufwand erfordert, dieses Vorhaben zu verwirklichen, sei es im firmeneigenen Test-Lab oder direkt mit »echten« Spielern. Denn eine durchwachsene Kompatibilität, so sind sich die Düsseldorfer bewusst, ist nichts, was sich ein paar Wochen vor Release noch beheben lässt.

Der Teufel steckt im Detail

Doch bei den technischen Fragen hört die Arbeit bei einer solchen Umsetzung nicht auf. Denn selbst wenn das Grundgerüst steht und das Spiel auf dem PC funktioniert, heißt es, die Feinheiten an die Plattform anzupassen. Daher sei es besonders wichtig, so Philipp Sonnefeld, Producer der PC-Version von For Honor, frühzeitig in Kontakt mit dem Lead-Studio zu treten. Deshalb reiste das Blue-Byte-Team geschlossen zu Ubisoft Montreal, um sich dort mit den Kollegen zu besprechen und sich kennenzulernen.

Ein weiteres großes Problem für das Team war die Steuerung. For Honors Reiz liegt darin, dass es versucht, den Schwertkampf taktisch einzufangen, weswegen bei der Controller-Steuerung der rechte Analogstick dazu dient, die Schwertposition festzulegen. Diese Funktionalität sollte aber natürlich auch auf den PC und seine Maus-Tastatur-Kombination übertragen werden. Keine triviale Aufgabe.

So startete das Team sehr früh damit, Nutzer die PC-Version von For Honor und damit die Umsetzung der Bedienung testen zu lassen, um Feedback zu erhalten und Daten zu sammeln. Die eingeholten Informationen wurden analysiert, um mögliche Verbesserungen davon abzuleiten. Nur so konnte Schritt für Schritt die Steuerung, aber auch das UI perfektioniert und an die speziellen Bedürfnisse des PCs als Plattform angepasst werden – statt einfach die Konsolenfassung eins zu eins zu übernehmen.

Was bringt die Zukunft?

Die Frage ist: Was kommt nach For Honor? Natürlich dürfte eine kleine Gruppe nach wie vor an Erweiterungen arbeiten oder aber die fertigen Erweiterungen aus Montreal für die PC-Version anpassen. Der Rest der Belegschaft sitzt unterdessen nicht untätig herum: Vier neue PC-Titel sind bei Blue Byte angeblich in Arbeit. Würde man Fortsetzungen von Die Siedler und Anno abziehen, blieben zwei Projekte, die unbekannt sind. Ob es sich hierbei um andere Ubisoft-Blockbuster handelt, die Blue Byte ins PC-Gewand kleiden soll, etwa den neuen Teil der Assassin's-Creed-Reihe, oder aber um eigene Projekte, das bleibt unklar. Doch für die deutsche Branche ist es ein gutes Zeichen, dass ein großer Publisher wie Ubisoft seine Außenstellen bei uns nicht unter »ferner liefen« abhakt.

Sebastian Weber

Ralf Wirsing ist heute Geschäftsführer von Ubisoft Deutschland und war mit dafür verantwortlich, dass Far Cry heute zu den Marken des Publishers gehört.

Die Guillemot-Brüder, die vor rund 30 Jahren Ubisoft gegründet haben.

STATUS QUO SPIELEINDUSTRIE?

Hans Ippisch von Computec Media und Stephan Reichart von Aruba Events blicken im Interview auf die deutsche Spieleindustrie, auf die Auswirkungen von Free2Play, Förderungen und auf die Zukunft der Branche.

Stephan Reichart
ist Managing Director der Aruba Events GmbH.

Stephan ist Managing Director und Gründer von Aruba Events, die er mit der ersten Quo-Vadis-Konferenz im Jahr 2003 ins Leben rief. Bereits seit 1999 ist er in der Spielebranche tätig, hat unter anderem als Game Designer mit seinen Aruba Studios eigene Titel entwickelt und war zeitweise Vorstand des GAME Bundesverbands.

Hans Ippisch
ist Geschäftsführer der Computec Media GmbH.

Hans ist seit 1991 für Computec Media tätig. Er baute zunächst unter anderem als Chefredakteur den Bereich der Konsolen- und Jugendzeitschriften auf und übernahm ab 2005 als Commercial Director beziehungsweise ab 2009 als Verlagsleiter übergreifende Verantwortung. Zuvor veröffentlichte er als selbstständiger Entwickler von 1986 bis 1991 zehn kommerziell erfolgreiche Computerspiele.

Making Games Aktuell steht die Branche in Deutschland, aber auch international vor umfangreichen Umwälzungen und kann sich auf spannende Neuerscheinungen freuen. Was sind die großen Themen, die in den kommenden 18 Monaten die Industrie beschäftigen werden?

Hans Ippisch PlayStation VR. Ob und wie Virtual Reality im Hier und Jetzt mit aktuellen Spielen funktioniert, lässt sich da schon ziemlich gut beobachten. Allerdings ist die PlayStation VR auf unseren Webseiten nicht das Topthema; da ist das Interesse schon zurückgegangen. Es ist aber noch zu früh, um hier irgendeine Aussage zu treffen.

Neben der Playstation VR haben wir noch die PlayStation 4 Pro im November, im März 2017 Nintendo Switch und Ende des kommenden Jahres Xbox One Scorpio. Microsoft Hololens wird sicher auch noch eine wichtige Rolle spielen. Spätestens mit der Hololens wird sich zeigen, wohin die Reise geht und wie gut das Thema Virtual Reality und Augmented Reality bei den Entwicklern und Spielern ankommt.

Stephan Reichart Die großen Themen, die wir in den nächsten eineinhalb Jahren in der Industrie sehen werden, sind: Wie gehen wir mit dem Wachstum um, das ja exorbitant und sehr investorenfokussiert vorangetrieben wurde. Gerade in Deutschland haben wir [durch die Entlassungen bei Firmen wie Goodgame und Gameforge] plötzlich hunderte von Mitarbeitern, die neue Jobs suchen und ich glaube, in den Regionen, die gute Förderinstrumente gesetzt haben, werden sich jetzt viele kleine Studios neu gründen. Was ich sehr spannend zu beobachten finde, ist herauszukriegen, wer denn da bei den Firmen »gegangen wurde«. Sind deren Mobile-Experten gegangen, weil man sagt, dass man sich dort nicht mehr engagiert? Oder sind die ganzen Juniors freigesetzt worden? Davon werden dann wohl viele bei Werbeagenturen anheuern. Momentan ist es übrigens so, dass 50 Prozent aller Absolventen von den Akademien und Hochschulen gar nicht in die Gamesbranche gehen.

»50 Prozent aller Absolventen von den Akademien und Hochschulen gehen gar nicht in die Games-Branche.«

Hans Ippisch Die Schwierigkeit ist auch, wie wir junge Leute überhaupt da rein bekommen. Wir haben damals ein C64 bekommen und einfach losgelegt, da waren natürlich viele Dinge deutlich einfacher als heute. Frau Merkel hat es bei den Medientagen in München gesagt: Auf der einen Seite gibt es die Förderung von Start-Ups, auf der anderen Seite soll künftig in Schulen Programmieren ein richtiges Fach werden. Ich sehe es ja an meinen Söhnen, die in der Schule diesbezüglich zu wenig gefördert/gefordert werden …

Making Games Nach dem Motto »Wie richte ich meinen eigenen E-Mail-Account ein«?

Hans Ippisch Nicht nur, aber auch! Das ist generell etwas, was sich in Deutschland ändern muss. Programmieren und der verantwortungsvolle Umgang mit dem PC soll an den Schulen unterrichtet werden. Wenn die Schüler sich damit beschäftigen, dann kommen sie auch viel leichter auf den Gedanken, vielleicht einmal eine App zu machen. Das fehlt völlig, da sind andere Länder weiter als wir. Hier muss man ansetzen. Allerdings wird man erst in etwa zehn Jahren Ergebnisse sehen können.

Stephan Reichart Ich habe letztens darüber nachgedacht, ob man sich eigentlich schon trau-

en kann zu sagen, dass die klassische Games-Entwicklung tot ist. Immer mehr Leute werden durch die ganzen [kostenlos verfügbaren] Engines in die Lage versetzt, Entertainmentprodukte zu machen und alles wird immer mehr gamifiziert. Man muss eigentlich gar nicht mehr wirklich klassischer Spieleentwickler sein. Man braucht gute Tools und pfiffige Ideen und dann kann man ein sehr unterhaltsames Produkt, beispielsweise zum Kochen, erschaffen.

Man macht Lernprodukte, ohne an sich selbst den Anspruch zu haben, Spieleentwickler zu sein. Ich glaube, die klassische Spieleentwicklung wird sich immer mehr in Richtung Blockbuster-Produktion verschieben. Es wird auch weiterhin die klassischen Spiele geben, die uns allen Spaß machen. Aber die Spielebranche, wie wir sie vor zehn Jahren definiert haben, existiert eigentlich kaum noch. Es gibt immer mehr Firmen, die dreißig oder vierzig Prozent ihres Umsatzes mit Dienstleistungen machen. Deck13 hat beispielsweise sehr viele Serious-Games-Entwicklungen gemacht und Crytek arbeitet viel mit Architekten …

Hans Ippisch … ein Spieleentwickler in München macht gerade die App für das Deutsche Museum. Das ist völlig in Ordnung, wir als Verlag produzieren ja auch nicht mehr nur gedruckte Hefte.

Stephan Reichart Eben. Ich glaube, dass wir uns in eine Entertainmentbranche verwandeln und nicht mehr »die Games-Branche« sind. Wir machen digitales Entertainment. Auf der EGES in Los Angeles sagte Neville Spiteri von WEVR, dass es für ihn nicht um Spiele geht, sondern um Fünf-Euro-Erlebnisse. Du zahlst fünf Euro und lädst dir ein VR-Produkt herunter, das unterhaltsam gemacht ist.

Making Games Wenn wir uns aber noch einmal dem Thema Engines widmen, das gerade angesprochen wurde. Kann man sagen, dass in der Spielebranche in den letzten Jahren ein Demokratisierungsprozess stattgefunden hat?

Stephan Reichart Eine Demokratisierung im Sinne von »jeder kann Spieleentwickler werden« – ja. Eine Demokratisierung im Sinne von »jeder kann davon leben« – eher nicht. Gerade im E-Sports-Bereich erlebt man ja Ähnliches: Wenn man in irgendeiner Form Geld machen möchte, muss man entweder ein Top-Spieler sein oder mit der ESL irgendwelche Deals verhandeln.

Hans Ippisch Ich denke, man kann es mit der Film- oder Musikindustrie vergleichen. Filme kann heute auch nahezu jeder machen, auch wenn es vielleicht nur mit einfachsten Mitteln ist. Nicht jeder kann aber ein Blair Witch Project produzieren. Musik kann auch jeder recht schnell erschaffen, das hört sich dann sogar auch oft vernünftig an. Ich glaube, es gibt heute mehr Spieleentwickler als je zuvor. In der Kategorie von Call of Duty und Co. mitspielen zu können, wird aber immer schwieriger.

Dennoch kann es passieren, dass man mit wenigen Mitteln einen Riesenerfolg landet. Die Chance, egal mit welcher Engine, ist glaube ich immer noch da. Was in Deutschland ein bisschen fehlt, ist der Respekt gegenüber Spieleentwicklern. In anderen Ländern bekommt man Respekt seitens der Familie und der Gesellschaft und in Deutschland, so habe ich den

»Die klassische Spieleentwicklung wird sich immer mehr in Richtung Blockbuster-Produktion verschieben.«

Deutschland hat nur wenige Entwickler, die sich im AAA-Bereich einordnen lassen: Crytek (Robinson: The Journey), Yager (Dreadnought), Blue Byte (Champions of Anteria) und Deck13 (The Surge).

Neben den wenigen größeren Studios in Deutschland, wie Crytek oder Blue Byte, gibt es vor allem viele sehr kleine, die aber durchaus erfolgreich sind. Bestes Beispiel: Studio Fizbin, die Macher von The Inner World.

Eindruck, traut man sich nicht ganz zu sagen, was man da macht. Ob man da stolz darauf sein kann, ist wohl immer noch ein wenig eine kulturelle oder gesellschaftliche Frage.

Stephan Reichart In dem Moment, in dem man den Begriff »Spiele« weglässt und sagt: »Ich mache digitales Entertainment.«, sagen alle: »Oh, das ist ja interessant!«. Als Spieleentwickler ist man da schneller in der Schmuddel-Ecke, und das bekommt man wohl auch nicht mehr geändert.

»Free2Play war ein unvermeidbares Phänomen.«

Making Games Vernichtet das Free2Play-Modell Werte, wie es Lutz Anderie in seinem Buch GamesIndustry Management beschreibt?

Hans Ippisch Ja, aber den alten Zustand kann man ja leider auch nicht wieder herstellen. Das Problem ist ähnlich wie das Online-Problem im Mediengeschäft. Mit kostenlosem Content wurde sehr viel Arbeit entwertet, die Verlage und Journalisten leisten. Die Leute sind es jetzt aber gewohnt und das bekommt man nicht so leicht korrigiert und den alten Zustand wird man schon gleich gar nicht wieder erreichen können. Das gleiche ist es eben, wenn man sich einmal daran gewöhnt hat, kostenlos Spiele zu bekommen. Dass ich dann wieder bereit wäre, 10, 20 oder 30 Euro zu zahlen, glaube ich nicht. Diesen Status umzukehren, ist ein langer Prozess. Klar ist, dass Spieleentwicklung aufwendig und teuer ist und dass sie nur mit einem vernünftigen Geschäftsmodell finanzierbar ist. Die Free2Play-Schiene auf Dauer und in allen Segmenten fahren zu können, wird nicht funktionieren.

Stephan Reichart Das sehe ich genauso. Ich denke jedoch nicht, dass das Free2Play-Modell Schuld daran ist, wie Lutz es sagt, sondern dass es einfach ein unvermeidbares Phänomen war. Das Internet hat auf vielen Ebenen einfach unheimlich viel liberalisiert. Das hat dazu geführt, dass eine Menge Gamer es durchaus fair finden, für ein Produkt zu zahlen, sofern es das auch wert ist. Wenn man abgezockt wird, dann ignoriert man es. Es ist also ein ganz anderes Selbstverständnis des Kunden. Auf der anderen Seite hat es uns aber Türen geöffnet, die man jetzt eben sinnvoll nutzen muss.

Man hat nun alle möglichen Micropayment-Möglichkeiten, die einem einfallen können. Wenn ich also früher einmal ein Renaissance-Spiel im 16. Jahrhundert gemacht und dafür enormen 3D-Content produziert habe, warum soll ich dann nicht hingehen und das als Virtual-Reality-Experience machen, für die man 2,50 Euro zahlt, um durch das Venedig des 16. Jahrhunderts zu laufen. Man muss anders denken. Man muss das Käuferverhalten nutzen und die Möglichkeiten und Trends sehen, die da auf uns zukommen. Die Leute werden weiterhin Geld für gute Unterhaltung ausgeben. Es ist aber eben nicht unbedingt der klassische Gamer-Gedanke.

Making Games Man hat ja in einigen anderen Bereichen zunehmend einen Flatrate-Gedanken. Man zahlt 10 bis 15 Euro und bekommt dann in großer Menge Unterhaltung, die einem gefällt, wie beispielsweise bei Netflix. Warum gibt es das nicht auch im Gaming-Bereich?

Hans Ippisch Das ist nur schwer vorstellbar. Da müssten sich alle Publisher von Spielen einig werden. Eine Plattform wie Steam, die sich dann die Rechte von jedem holt, könnte es schaffen. Das ist aber eine schwierige Aufgabe, wie auch bei Verlagen, die Flatrates für Magazine anbieten wollen. Die Verlage werden sich nie einigen können und für manche Produkte ist ein derartiges Modell auch nicht gesund.

Stephan Reichart Wobei wir ja im Prinzip schon Flatrates haben. Man hat ja ein Abomodell bei vielen erfolgreichen Spielen, bei denen man dann beispielsweise seine 8,99 Euro im Monat zahlt. Das gilt dann zwar für ein einzelnes Spiel bezogen, aber man kann ja auch seine Spielzeit nur ein einziges Mal »ausgeben«. Wenn man dann in einem Spiel für mehrere Stunden pro Woche versinkt, ist das etwas anderes, als wenn man Serien ansieht. Man konsumiert ganz anders. Serien und Film kann man immer im Hintergrund vor sich hinplätschern lassen, bei Spielen muss man aktiv am Geschehen teilnehmen. Ich kann mir vorstellen, dass es durchaus Sinn ergibt, eine Indie-Game-Flatrate anzubieten, bei der man die Klassiker der letzten 20 Jahre spielen kann.

Hans Ippisch Da sind wir dann aber bei Geschichten wie Spotify, von dem ich glaube, dass es die Musikindustrie zerstört. Die schaffen selbst nichts, nutzen die Infrastruktur anderer und machen damit Milliarden. Die Telekommunkationsanbieter stellen die Netze und haben einen riesigen Aufwand, die Musiker machen ihre Arbeit und stecken ihr

Die Quo Vadis in Berlin (oben) und die Respawn in Köln (unten) sind heute sehr erfolgreiche Konferenzen für Entwickler. Aruba und das Computec-Portfolio sollen sich hier verstärkt ergänzen und gegenseitig unterstützen.

Leben und Herzblut hinein und Spotify stellt sich in die Mitte. Uber ist für mich auch so ein Beispiel.

Making Games Spricht man über die Zukunft der Branche, so muss man sich auch über die staatliche Politik unterhalten. Wie hat sich das Verhältnis zwischen der Gamesbranche und den staatlichen Institutionen in den letzten Jahren in Deutschland geändert?

Hans Ippisch Es hat sich dramatisch verändert und zwar zum Positiven. Noch vor fünf oder zehn Jahren wäre es nicht vorstellbar gewesen, dass hochrangige Politiker die Gamesbranche offiziell unterstützen und sich auf solchen Veranstaltungen blicken lassen. Heute sieht man an Dobrindt und Kollegen, dass all diese Leute, die jetzt Verantwortung haben, auch mit Spielen aufgewachsen sind. Die sind alle im Bereich 40 Jahre aufwärts und kennen Geräte wie den C64 noch aus ihrer Jugend und haben diesbezüglich keine Berührungsängste mehr.

Die Generation davor ist nicht mit Videospielen aufgewachsen und war daher entsprechend vorsichtiger. Ich denke, das ist auch eine ganz normale Reaktion. Dieses neue Denken ist aber wahnsinnig wichtig, da durch diese neue Offenheit jetzt auch Projekte entstehen, die seitens der Politik vorher niemals unterstützt worden wären. Die finanzielle Unterstützung wächst, wie beispielsweise die Budgets beim Deutschen Computerspielpreis. In diesem Zusammenhang muss man auch Dorothee Bär nennen, die wahnsinnig dafür kämpft, dass sich da noch mehr tut. Es gibt nun wesentlich mehr Möglichkeiten. Die Spieleförderung hat zwar noch einen weiten Weg vor sich, aber es ändert sich etwas.

Im internationalen Vergleich haben wir aber dennoch einen großen Nachteil. Länder wie Kanada haben da ganz andere Möglichkeiten. Es ist aber ein Anfang gemacht und in der Politik funktionieren die Dinge ja auch nicht über Nacht. Aber wenn man nach Bayern sieht: Dort werden jährlich 30 Millionen für Filme bereitgestellt und für Games nach wie vor nur ein Bruchteil. Man muss fleißig daran weiterarbeiten, dass irgendwann für Games genauso viel zur Verfügung gestellt wird, wie für Filme, aber das wird nicht über Nacht passieren.

Was jedoch erkannt wird, ist, dass die technologische Entwicklung sich in Richtung Games bewegt. Dass sich beispielsweise in den Schulen etwas tun muss, das haben das Kultus- und das Wirtschaftsministerium erkannt. Und wir reden nicht nur von Games, sondern generell vom digitalen Bereich, egal ob es um User-Interfaces oder um Spiele geht. In den letzten fünf Jahren hat sich da einiges getan. Man muss verstehen, dass die Politik nicht so einfach funktioniert. Wenn ich aber zurückdenke, wie es in den 80ern und 90ern war, hätte man sich einen solchen Zustand nicht träumen lassen können. Insofern erleben wir hier eine sehr gute Entwicklung, weshalb ich zuversichtlich bin, dass wir irgendwann auch die Lücke zur internationalen Konkurrenz verkleinern können.

Making Games Wie wird die Zusammenarbeit zwischen Aruba und Computec künftig aussehen?

Hans Ippisch Aruba hat nun Möglichkeiten, die es früher nicht hatte, genauso wie es nun Chancen gibt, die früher bei Making Games in München so nicht existiert hätten. Da greift eins ins andere und wir können das Wachstum bei Aruba nun begleiten und inhaltlich unterstützen. Da stehen wir momentan aus meiner Sicht am Anfang der Dinge, die wir zusammen schaffen können, mit Computec, Aruba, Making Games und Gamesbusiness. Es gibt zigtausend Entwickler, die Informationen für ihre Arbeit benötigen und als Computec können wir Angebote in diesem Feld schnüren, die es so bislang nicht gibt.

Neben unseren Consumerangeboten, wie Gamesworld mit über 4,3 Mio. Usern, versuchen wir bei Computec alles abzudecken. Angefangen von der Entwicklung des Spiels, Kickstarter-Unterstützung über unsere Medien, über die fachliche Weiterbildung für Entwickler, Events, gedruckte Zeitschriften, Talentbörsen, bis hin zur Auslieferung des Spiels, oder auch Serverdienstleistungen, die wir im Haus haben. Wir wollen den ganzen Bereich abdecken, das ist unsere Motivation.

> »Im internationalen Vergleich hat die deutsche Gamesbranche einen großen Nachteil.«

Dabei soll jedoch alles seine Eigenständigkeit bewahren. Aruba soll von den positiven Dingen bei Computec profitieren, von den Medien und den Inhalten und ansonsten einfach so weitermachen. Das Gleiche bei Making Games. Wir haben hier auch neue Angebote in Vorbereitung.

Stephan Reichart Die Vernetzung der Aruba-Veranstaltungen, mit dem Content, den wir produzieren, mit den Computec-Magazinen, wie Making Games, mit den Redakteuren, als Content-Aggregatoren, auf den Konferenzen – es macht mir unheimlich viel Spaß, darüber nachzudenken, wie es damit die nächsten Jahre weitergehen könnte.

Hans Ippisch Das Portfolio von Computec ist ja auch kein Zufall. Die gezielte Erweiterung um verschiedene Aktivitäten ist gewollt und da steckt ein Plan dahinter. Die B2B-Produkte hatten wir mit Golem gestartet, dem Linux-Magazin und nun mit Aruba. Da haben wir schon ein Ziel verfolgt. Das kann man künftig sicher noch besser verknüpfen und mehr daraus machen und genau das ist auch der Weg, den wir einschlagen.

Interview: Sebastian Zelada

Das Gespräch in voller Länge

Das hier abgedruckte Interview ist lediglich ein Auszug des Gesprächs über den Status quo der deutschen Spielebranche. Die ungekürzte Fassung, in der es unter anderem auch um die Förderung von Projekten oder Crowdfunding geht, finden Sie auf www.gamesbusiness.de

Free2Play-Spiele wie etwa Olympus Rising von flaregames oder Angry Birds Epic von remote control sind durch die libalisierenden Effekte des Internets ein unvermeidbares Phänomen gewesen. Doch Nutzer werden auch in Zukunft für gute Unterhaltung noch bereit sein, Geld zu bezahlen.

HIGHLY EFFICIENT ONLINE CAMPAIGNS

HOW TO EXECUTE THEM WITH THE HELP OF BEHAVIORAL TARGETING

Albert Schwarzmeier explains how marketing campaigns for games can be done efficiently even with smaller budgets, and how different advertising techniques can be combined.

Albert Schwarzmeier is CEO at ad2games.

Schwarzmeier has a strong background in ad-tech and company building. Before ad2games, Schwarzmeier founded and led a number of successful companies like the e-commerce platform mysportgroup or Groupon Germany. This was proceeded by respected consulting roles at Zalando and Roland Berger Strategy Consulting. Schwarzmeier graduated with a Master Degree with distinction in Business & Economics from the leading German business school for entrepreneurial education (HHL) after studying at Universidad del Pacifico in Quito/Ecuador.

Smaller budgets and online marketing campaigns – especially self-publishing developers react skeptically when thinking about possible success and ROI rates of such a combination. Branding and classic online advertisement campaigns only sound right when thinking about investing a certain budget. New targeting technologies, such as programmatic advertising, however allow to spend marketing budgets much more efficiently – and as such to create results also with comparably low starting budgets.

With increasing numbers of competitors, increasing budgetary pressures and the need to exactly know whom to target when and where, publishers and developers have to use new ideas and forge new paths in digital marketing. Besides usual ad campaigns, especially programmatic marketing and behavioral targeting have seen tremendous results with increases in digital media ROI, and a significant decrease in scattering losses. What is programmatic marketing? Simply put: programmatic marketing is a way to automate media planning and to target new and existing users with an apparent interest in the advertised game or product. As a result, it increases the performance of digital advertising investments significantly.

Digital marketer ad2games offers, additionally to classic branding and user acquisition campaigns, a special, unique way to improve online campaigns: Using their internally developed technology Audience Enhancement optimizes campaigns on user groups with a very likely interest in buying the advertised products. Thus, the efficiency of a campaign can be increased significantly and the costs will be decreased respectively.

Also, Audience Enhancement campaigns don't necessarily need a 6-digit+ budget or more to work – of course, the bigger the budget, the more the optimization options, runtime and delivery. Still, Audience Enhancement campaigns can work from small to medium 5-digit budgets onwards.

The following wrap up shows how such campaigns can be implemented into a game publisher's marketing plans, to support the launch or even also post-launch phase of a game.

1. Audience Enhancements – the Basics

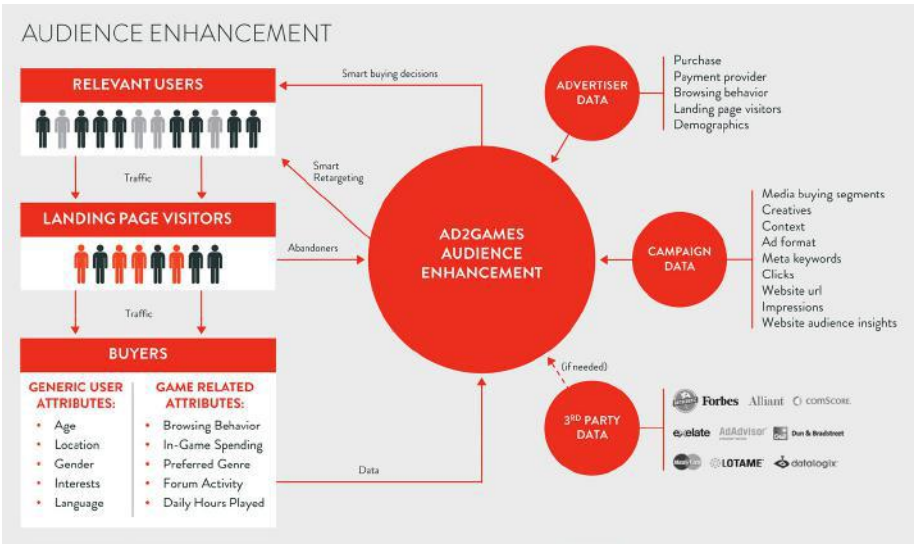
ad2games' Audience Enhancement campaigns are based on the Cost per Sale model (aka Cost per Order): Only actual sales are being charged, for a percentage of the revenue. That way, premium products such as Pay2Play games, add-ons and also premium packages can be advertised very efficiently.

Audience Enhancement uses existing and researches new intelligence to estimate which users do have a likely interest in purchasing the advertised product. Data is based on users' browsing behavior, gender, age, and genre preferences and gets compared to existing intelligence. The automated solution using artificial intelligence and real-time bidding allows placing individual ads for online display, social media advertising, and video campaigns. A real-time audience can be achieved through tailor made and precise algorithms using a smart combination of sociodemographic, behavioral, and geographic data. In other words, Audience Enhancement is helping to get the best possibly fitting buyers or

Audience Enhancement Campaigns

Audience Enhancement campaigns usually include:

- Programmatic advertising
- Automated media buying
- Identifying users with a potentially high interest in buying the advertised product
- Re-targeting
- Prospecting, aka similar user targeting



An illustration of how Audience Enhancement works in detail.

target group in the easiest and cheapest way. It increases the effectiveness of the campaign and also helps to improve results significantly.

Usually, prospecting and re-targeting techniques are being used. In the case of prospecting new users are driven to a game landing page they haven't visited before. In the case of re-targeting, that means »following users« that just left a game landing page with smart creatives, i.e. delivering advertisements (for the game landing page) on the various other websites they're surfing to.

Audience Enhancement enhances and increases these mechanisms, so that users with strong to very strong buying intention are being prospected from destinations that fit the advertised product well, and are only being re-targeted if their re-action on the advertisement (i.e. clicking or not clicking) signalizes they're interested in a game.

2. Before a Games Marketing Campaign starts – Planning and Preparation

Intensive planning is key: Targeted Audience Enhancement campaigns are being constantly optimized. Data is collected usually already 4 to 8 weeks before campaign start and additional data is won during a campaign. All these data points are used while a campaign is active, as well as for future campaigns, to make them even more efficient, and to prepare additional flights even better.

Although ad2games' Audience Enhancement Technology offers automated media booking suggestions based on available data – of course, all decisions are subject to client's approval –, each campaign needs intensive preparation and planning:

Additionally to timing and content, target territories are being defined, as well as target groups, respectively the criteria, and interests on which target groups are being chosen by ad2games' algorithm. When targeting users based on their preferences, much more is being considered than just a collection of tags and demographic data. ad2games' Audience Enhancement Technology also uses actual user data.

When re-targeting users, cookies of visitors of product and company websites are being evaluated, including the URLs of websites users left off to. When of relevance, these are being added to the delivery targets for the campaigns. Real-time bidding for online, social media, video, and mobile advertising spaces applies, securing the most cost-efficient and relevant placements.

In detail, when planning an Audience Enhancement campaign, geo targets and attributes are being defined, which the algorithm will consider for automated media buying

Benefits of Audience Enhancement

Benefits of Audience Enhancement compared to »classic« campaigns

- Real-time system, rules and algorithm to automate the delivery of data driven, targeted and relevant advertising to consumers.
- Flexible and very targeted setup that recognizes the consumer as he moves between channels and touch points.
- The delivery of improved effectiveness also translates into increased relevance for the consumer and greater revenue for the publisher.
- Measurement of campaign results in real-time:
  Easy to set clear and measurable campaign goals, usually on a CPO basis. Optimization algorithms process data and make adjustments when the campaign is live. More efficient campaigns and reduced campaign costs.

Some impressions of the international team at ad2games, a digital marketing company specializing in Pay2Play and Free2Play games on PC and console platforms.

Overview of a campaign for Black Desert Online.

– ranging from generic user attributes such as age and gender via gaming specific characteristic such as preferred genres or average daily and weekly playing time, to insights such as average spending on and in games, as well as forum activity.

So, gathering as much as possible relevant data and insights beforehand will speed up the planning process drastically. At the same time, budgeting will not be such a major concern anymore, since booking suggestions will be chosen using ad2games' algorithm, and all it takes is a set budget for Audience Enhancement campaigns to kick things off.

3. Launch of a Product or a Games Marketing Camapign

Of course, many marketers will want to rely on proven strategies first, granting them more calculable results. At least, that's what the mindset is when executing a campaign. So, adding in an Audience Enhancement campaign shortly before, during or shortly after launch of a game is something marketers recommend – although it leaves less room for planning and optimization.

Still, an Audience Enhancement campaign can kick off and start showing very positive results quickly without the need of a significantly higher budget. The only cost increase marketers will see is that through quicker booking needs, the real-time bidding system can act a little less cost-effective than with long term preparation.

With a programmatic marketing solution like Audience Enhancement also during the campaign the budget, goals, and attribution model can be defined while the solution rapidly adjusts dozens of variables in real-time based on performance to determine the right campaign settings to achieve the desired ROI. The algorithm that filters impressions based on behavioral data, allows it marketers like ad2games to spend more time being creative and less time reading spreadsheets and helps so to increase results.

4. Post Launch of a Games Marketing Campaign

Sales, discounts, and special packages: As Audience Enhancement campaigns support premium sales very well, post launch campaigns lead to strong results for the advertiser.

Promoting timely limited, discounted sales on own or external stores, or in general the availability of a special package – be it a bundle of products or in-game contents itself – generates extremely cost-effective, direct sales.

Conversion rates can also be increased significantly with re-targeting, fully controlled by solutions like Audience Enhancement. The tool prospects similar monetizing users, engages inactive users, and re-targets non-converting website visitors. According to the experience of ad2games, in the Pay2Play market the average rate of non-converting website visitors is in the range of 90 percent to 99 percent. This means that publishers have been watching 9 to 9.9 out of ten potential customers to get close to completing a purchase and then walk away.

Re-targeting as such means that users who already showed interest in a particular product – e.g. by visiting a product-specific website – will get advertisements delivered when visiting other websites without completing a purchase. Cookies allow »chasing« users for a few stops through the internet, and delivering interest-specific advertising content. Retail giants such as e.g. Amazon heavily use re-targeting mechanisms successfully.

Re-targeting can help to do more than just win back potential customers. User re-targeting can also fuel the discovery of an offered product and can lead to a sale in the end. Another very positive aspect is an increase of the purchase frequency among top customers.

However, re-targeting needs sensitive actions, to not put users off who do clearly not want to make a buying decision at a given time. Re-targeting campaigns need a clear cap to be successful and sensitive at the same time.

What is best to promote?

Ideal contents to promote are:

- New Releases
- DLCs / Add-Ons
- Bundles:
  Full Game 1 + Full Game 2 + ...
  Or: Full Game + DLCs
- Premium Packages

A campaign for Rainbow Six: Siege had the goal to acquire new users for the Closed Beta of the game. The results were better than expected.

5. Campaign Examples

As part of one of the most recent Audience Enhancement campaigns, publisher Kakao Games used ad2games' services in Q1 and Q2 2016 to push their successful MMO Black Desert Online. Furthermore, an additional campaign is executed in Q4 2016 in the weeks before Christmas. The planning and execution of the international direct sales campaign in the US, Canada, UK, France, and Germany contained an effective mix of influencer branding, site skin placements, re-targeting, and prospecting.

The goals during the three campaign flights – pre-order, launch, and post release – included an overall increase in brand awareness, maximize sales in the release and post release phase. Generate direct sales with eCPO in the range of 15 percent to 32 percent (of the package sales price) and perform programmatic advertising with combined prospecting and re-targeting setup.

Ad2games used an effective mix of services to maximize the campaign results:

- Influencer activities via video placements on leading US influencer channels as product branding, as well as a CPA based affiliation program for YouTube and Twitch channels (e.g. the »Five Fun« video with ScrewAttack!) through the ad2games' subsidiary and influencer specialist nevaly.
- Execution of a branding campaign on leading gaming websites in the targeted territories to achieve mass awareness by selecting the right target audience and placing high impact site skins.
- Audience enhancement (programmatic advertising) to generate direct sales. Re-targeting on non-purchasing users, collection of consumer behavior data for look-alike targeting, finding similar users with a high probability of purchasing. Automatic optimization of all media buying towards the lowest CPS.

In the end the results were:

- +10.5M impressions and 190k clicks generated on main videogame websites
- +85,000 sales generated at less than 20 Dollar CPO
- +73,000 views generated with ScrewAttack!

Also, Sandbox Interactive reports successful campaigns for Albion Online. Additionally to offering their Audience Enhancement services, ad2games supported with creating landing pages and banners, as well as consulting on selecting geo targets. The global campaign delivered especially high results in Russia and Brazil.

Such campaigns do not only generate important sales for ad2games' clients, but do also bring up precious points for additional campaign optimization, which will be implemented into running and future campaigns. Especially for Pay2Play premium products, Audience Enhancement campaigns allow additional insights, which game publishers usually won't have from other sources. **Albert Schwarzmeier**

For Far Cry: Primal ad2games delivered qualified users for the game's launch through programmatic video ads, with very good results.

ad2games Marketing Services

ad2games offers the following marketing services:

- Campaign creation
  Strategic concept and planning
  Media buying
  Execution
- Programmatic Advertising – Audience Enhancement
- Creative design
- Landing page design

ad2games

THE LANDSCAPES OF VIDEO GAMES MEDIA

Thomas Bidaux from ICO Partners takes a look at gaming media, and delivers an analysis of the landscape, country differences and the most popular games.

Thomas Bidaux is CEO of ICO Partners.

Thomas is a consultant for the online game industry and has been providing business intelligence to its clients for many years. He is regularly sharing insights on different topics from ICO's data mining initiatives, including video games PR and crowd funding for games. Follow him on @icotom

The Witcher 3

Fallout 4

Star Wars: Battlefront

The Witcher 3 was overall the most mentioned game in 2015, while Fallout 4 dominated the English-speaking media. Even with its strong brand Star Wars: Battlefront could not beat those two RPGs.

The video games industry is a complex ecosystem, and its complexity has only grown over the past few years, with new platforms, new genres, and new business models constantly redefining the nature of interactive entertainment. As part of the ecosystem, the media that cover the video games is often a topic that is not much discussed, despite also going through its own changes over the years.

We recently put together an extensive report looking more in depth into the profiles of the online websites specialized in video games in English, French, Italian, German and Spanish (EFIGS). You can download the report for free on our website, but here are the key findings. All the data was collected over one year (January 2015 to December 2015) across 1,300 websites. We only considered websites that cover video games as their main topic and that published at least 52 articles over the year.

Publications Timing

One of the objectives of the report was to be able to look at the video games media across the five different languages and to highlight in which ways they were different. At the highest levels, it is quite interesting to see that there are some very different patterns from one to another, some more obvious than others.

One of the first information that we checked was the time of publication of their articles (see **figure 1**).

The ideal timing for sending a press release is a common topic of discussion for companies that want to be able to hit the sweet spot where both European and American media are receiving it, and can treat it the same day.

It is quite apparent that past 6 p.m. (CET), all non-English media see a significant drop in their publications. English-speaking media though sees a constant output, with a significant part of it starting around 4 p.m. (CET). Any communication that is issued past

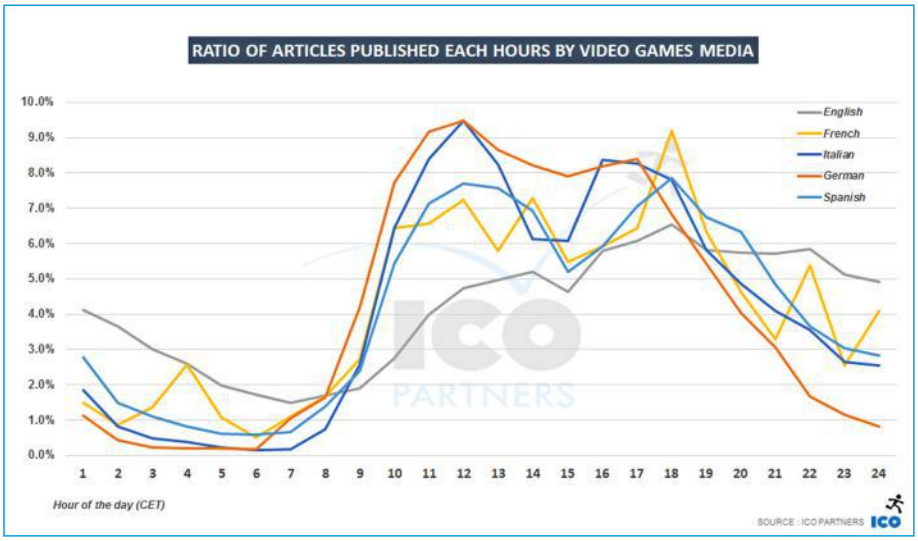


Figure 1: This graph shows the average time of publication of articles.

5 p.m., because of the time required for it to be written, will likely miss the publication time of continental Europe.

Media Sizes and Behaviours

To get some perspective, we also looked at the relative sizes of the different media landscapes. We considered two measures, the total number of articles (see **figure 2**) published about games and the total number of websites of certain sizes in each language.

When it comes to the total number of articles, there is a first observation that is striking: there are overall fewer articles in French than in any other languages that are published.

And, there are more articles published in German games websites than any of the other languages. But this doesn't necessarily reflect the landscape in terms of the number of media that are producing this output.

We used the Alexa ranking of each website (see **figure 3**) to determine their popularity and scale, even though we are aware this method proves to have some limitations.

There are almost as many »large« media in English for video games (28) than as all the other languages we studied combined (30). Obviously, it makes sense as the Anglosphere represents a bigger market than the other languages, but we believe there is also an effect related to English media to be very influential, and many media-related activities are focused on them. Or maybe the other way around, the focus on English media has made them more influential.

The larger number of French and German »small« media (respectively 195 and 225) is representative of a stronger dedicated »hobbyist« media of those landscapes that are publishing regularly enough to be included in our research sample.

When taken together, the average articles published per day per website is highlighting two interesting behaviors (see **figure 4**): French media publish fewer articles on average (1.5 articles per day per website on average), than the other languages. We can put this partly to a higher number of small websites that publish regularly, but not in large volumes, but also to a local specificity where volume is not an objective for the media. At the other end of the spectrum, Italian media have a very high average output (4.2 articles per day and per website on average). This behavior we have observed across Italian websites of all sizes. It could be concluded that obtaining coverage in Italian is easier than in other languages, but that coverage would also be more quickly diluted by other articles.

The Most Popular Games and Platforms

One of the things we looked at specifically is the coverage received by the major gaming

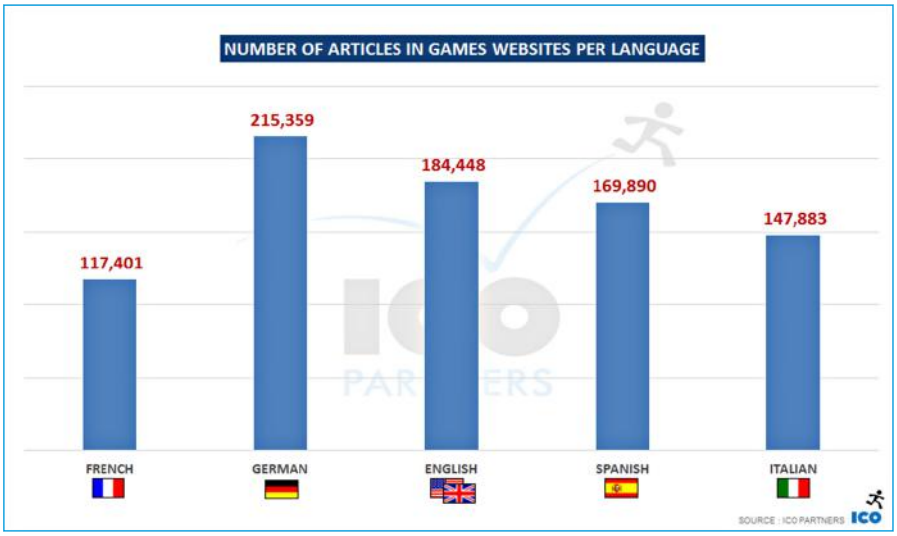


Figure 2: A comparison of the number of articles per language.

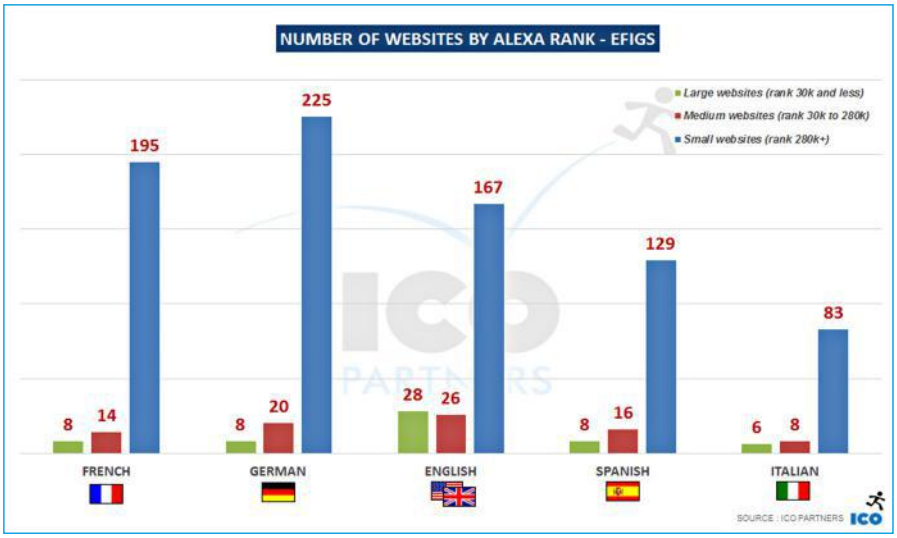


Figure 3: Comparison of the popularity and scale of websites per language.

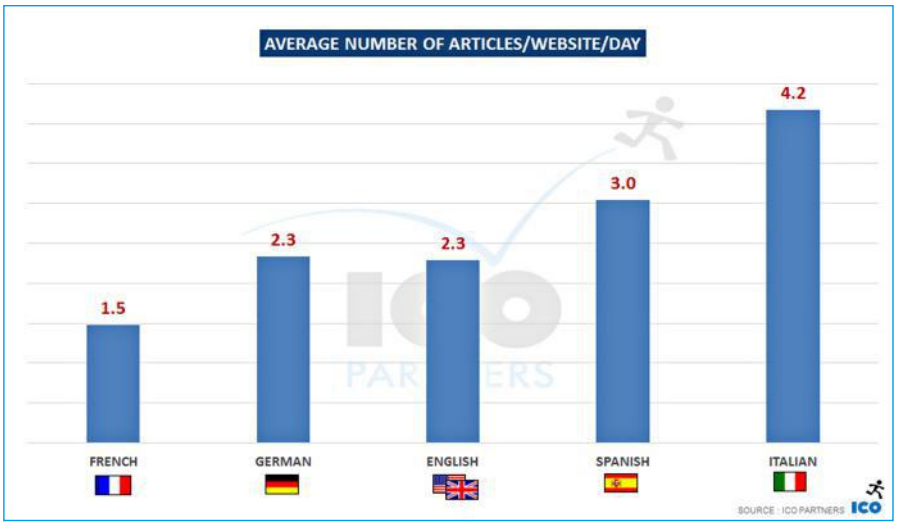


Figure 4: This graph shows the average number of articles per day per language.

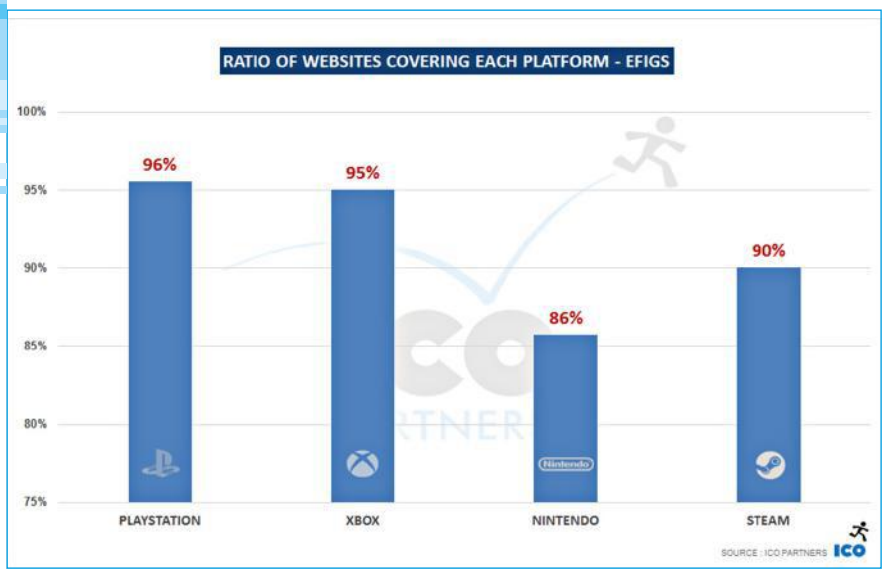


Figure 5: A comparison of the coverage of different platforms.

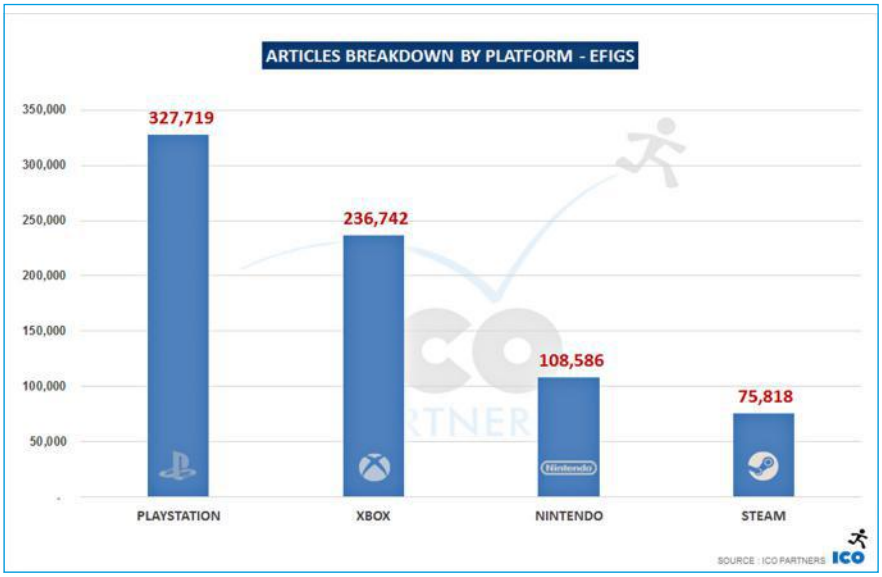


Figure 6: The volume of articles per platform.

MEDIA AFFINITY WITH GAME PLATFORMS

	PLAYSTATION	XBOX	NINTENDO	STEAM
FRENCH	=	-	+	-
GERMAN	=	+	-	=
ENGLISH	=	=	-	+
SPANISH	+	+	+	=
ITALIAN	+	=	+	-

Affinity is determined based on the percentage of all the articles published in a language covering a platform compared to the global average for that platform.

Figure 7: This chart shows the »media affinity« for a certain platform based on the language of a website.

platforms over a year. There are two things we considered when looking at the relative media presence of those platforms.

First, the percentage of websites that mentioned the platform at all (see **figure 5**).

There are two very clear leaders, with both Xbox and PlayStation having 95 percent and more of the games websites mentioning them. The main consoles are so ubiquitous that it is almost surprising that they aren't at 100 percent, to be honest. But you have to account for PC-only media as well, and they are unlikely to have much coverage of the consoles.

More surprising is how Steam, which is not a platform that has a very pro-active communication strategy, still has 90 percent of all the websites mentioning it. This is ahead of the Nintendo platforms (Wii, Wii U, 3DS) standing at 86 percent.

Then, beyond the websites, we also looked at the volume of articles for each platform (see **figure 6**).

It shouldn't be a surprise to see PlayStation ahead here with more than 300,000 articles over a year. They have a very strong media presence, and they are constantly ahead of the other platforms in terms of media coverage, and it also echoes with the lead it has built in terms of hardware installs in the current cycle. Looking at the scale, that's still 3-times the total number of articles mentioning the Nintendo consoles (108,000 articles), and almost 30 percent more than the volume of articles mentioning the Xbox brand (236,000 articles).

Steam being behind (75,000 articles) matches with what we were referring to earlier, and the lack of a dedicated communication strategy on the platform from Valve. Much of the coverage is inherited from studios and publishers launching their game on the platform, and without consideration for the brand presence.

One objective of the research is to provide some reference points in regards to how different the media are from one another based on their language and culture. We were able to put together a table that show what we called the »media affinity« for certain platforms based on the language of a website (see **figure 7**).

One very interesting pattern is how French, Spanish and Italian media, all based in Mediterranean countries, have a stronger affinity to the Nintendo platforms compared to websites in German or English.

This is not to be interpreted as, for instance, French websites having more coverage on the Nintendo consoles than on the Xbox ones. But in proportion, French media are writing more articles on Nintendo than the German media. I think this is an important consideration – as this helps understand the different sensibilities of the different cultures when it comes to games platforms.

As another example, we looked at the top 10 games in terms of media coverage (number of articles) in English and in German, for the calendar year 2015, set at the same scale (see figure 8 and 9).

On our blog, we did a retrospective of the whole year in terms of media coverage and in it The Witcher 3 was the most mentioned game of 2015, across all the languages we track. But in English it only came second, behind Fallout 4. In German, The Witcher 3 is the clear winner with a third more coverage than the second best game: Star Wars Battlefront. Fallout 4 only coming third in the German media.

Another interesting takeaway is the very strong media coverage in German for World of Warcraft. The game doesn't make it to the top 10 in any other language. World of Warcraft had more articles in German than Metal Gear Solid 5 had in English.

Benchmark: What is a Good Launch?

Part of our process is to slowly build a better understanding of the whole ecosystem. With this in mind, we included a simple benchmark for successful game PR campaigns in the report. Benchmarking communication is really complex, not all campaigns follow the same strategy, have the same number of beats or even the same approach when it comes to assets. There is one element that all games share though: they all have a launch. Launches, across all games (except mobile games), are some of the best beats you can ever have. With this in mind, we looked at 15 AAA games and how many articles they received in the 48h cycle of their launch. And for comparison, we took 20 indie games, with the best media coverage, and looked at their 48h launch cycles (see figure 10).

We had two objectives: understand the scale of the coverage both types of games had, and look at the difference between the two. AAA games had on average 1,494 articles for their launch while our »triple i« games had on average 231 articles. I think it is critical to understand that we didn't compare the blockbuster to minor games … Having more than 200 articles for any launch should be considered a significant achievement. And it is also equally important to realize that the AAA games operate on a scale of their own, and their media coverage cannot be emulated by smaller games in any way.

We made that report free online to anyone, you just need to head over to our website to get it: icopartners.com/reports

Thomas Bidaux

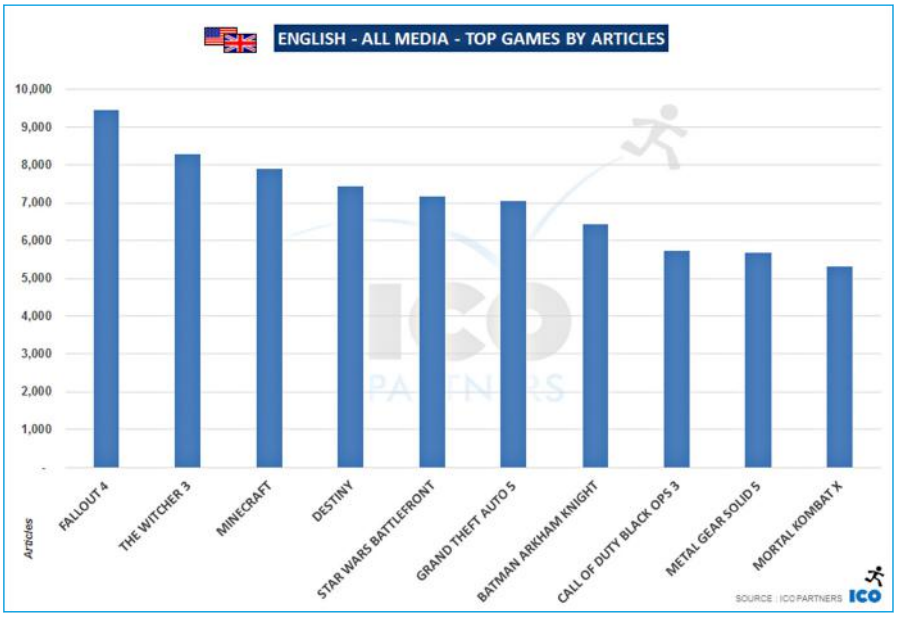


Figure 8: A chart with the top games by article for English-speaking media.

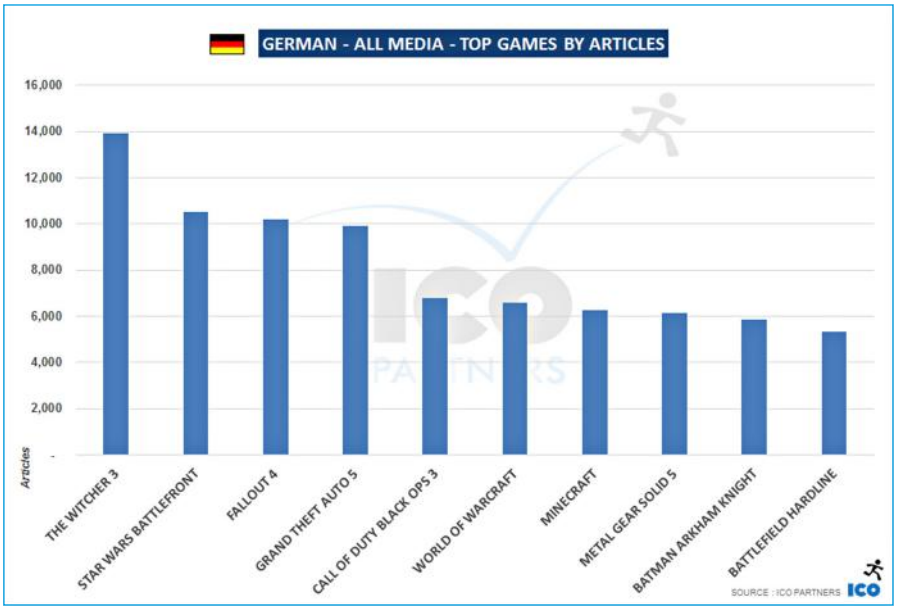


Figure 9: A chart with the top games by article for German-speaking media.

Figure 10: Comparison of the coverage during launch of a AAA game and an indie game.

FLASH IST TOT! ES LEBE HTML5?

Immer mehr Browser-Hersteller sperren Flash aus und unterstützen keine Inhalte mehr, die darauf basieren. Die Hamburger Browsergames-Entwickler von Playa Games haben sich daher darangemacht, einen Konverter zu entwickeln, der Flash in HTML5 übersetzt, und berichten hier von ihren Erfahrungen.

Clemens Brandes-Hell ist Head of App Development bei Playa Games.

Clemens ist seit Firmengründung Teil von Playa Games – also seit mehr als sieben Jahren. Vor dem Flash2HTML5-Konverter hat er unter anderem den Flash-Client von Shakes & Fidget entwickelt, dem mit mehr als 50 Millionen angemeldeten Spielern bis dato erfolgreichsten Spiel des Hamburger Entwicklers und Publishers.

Das Problem könnte drängender kaum sein: Bereits seit Jahren läuten die Mobilgeräte- und Software-Hersteller, die einschlägige Fachpresse und zuletzt sogar Schöpfer Adobe selbst eifrig und lautstark die Totenglocke für jene einst sehr verbreitete, aber kaum je wirklich geliebte Web-Technologie namens Flash. Auch wenn der finale Atemzug des seit Jahren als Ressourcenfresser und Malware-Einfallstor verrufenen Plugins nach wie vor auf sich warten lässt – die Einschläge kommen zuletzt spürbar näher. Ankündigungen führender Browser-Entwickler, zunächst eine Blacklist für schädliche, später sogar eine verpflichtende Whitelist nur für nachweislich unschädliche Flash-Elemente einzuführen, versetzt Branchen in Aufruhr, die zum Teil auch heute noch auf die proprietäre Technologie setzen.

Weshalb noch so viele an Flash festhalten

Nun könnte man sagen, selbst schuld, wer den Abgesang auf dieses technologische Fossil aus der Internet-Steinzeit einfach nicht hören will. Immerhin gibt es ja seit 2014 endlich eine fertige Spezifikation für HTML5, das doch »den« Standard für Web-Anwendungen setzen und Flash damit endgültig obsolet machen sollte. Warum aber sind dann beispielsweise manche Anbieter von Browsergames nicht längst auf den Zug der Zeit aufgesprungen und haben die überfällige Migration nach HTML5 immer noch nicht vollzogen?

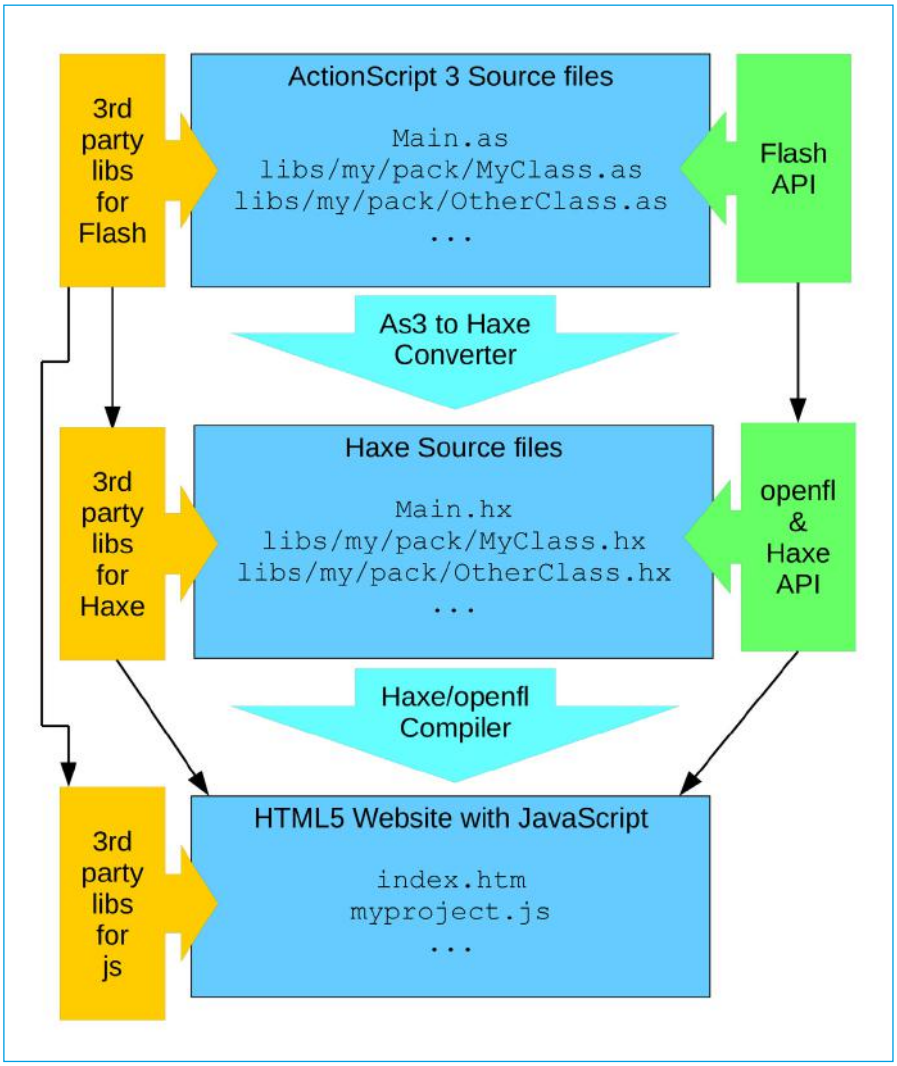
Kaum zu unterscheiden: Das erste Bild zeigt die Flash-Version von Shakes & Fidget, das Zweite die HTML5-Version (Open Beta).

Es mag Betreiber geben, die den Anschluss tatsächlich einfach verschlafen haben. Wahrscheinlich fehlt es auch mancherorts an Fachkräften, die Erfahrung mit neuen HTML5-Frameworks mitbringen. Oder es fällt manchen schwer, sich überhaupt für eine Technologie, eine Engine oder ein Framework zu entscheiden. HTML5 bringt von Haus aus beileibe nicht den Funktionsumfang mit, den die Flash-API wie selbstverständlich bereithielt. Mit »nacktem« HTML5, sprich JavaScript kommt man noch nicht sehr weit.

Im Falle von Playa Games lag der Hauptgrund für das Festhalten an Flash und der zugehörigen Skriptsprache ActionScript (AS3) gar nicht bei Flash selbst, sondern vielmehr beim ActionScript-Laufzeitmodul AIR, mit dem sich eigenständige Anwendungen für verschiedene Plattformen erzeugen lassen. Das ehemals als reines Browsergame begonnene Shakes & Fidget existiert längst auch als App für iOS und Android sowie als Standalone-Anwendung für Steam auf dem PC oder Mac. Diese Anwendungen sind allesamt aus der Flash-Version hervorgegangen und hängen nach wie vor damit zusammen. Das Reizvolle bei der Nutzung von AIR und Flash ist nämlich die Möglichkeit, aus einer einzigen Codebasis die Anwendungen für mehrere – im besten Falle sämtliche – Plattformen auszuspielen, inklusive des Browsers. Hier und da sind natürlich einige Compiler Conditionals vonnöten, um auf plattformspezifische Besonderheiten wie Maus/Touch oder unterschiedliche Payment-Schnittstellen einzugehen. Aber insgesamt lässt sich der Code etwa bei Shakes & Fidget zu gut 95 Prozent plattformübergreifend verwenden und verwalten. Das spart Entwicklungszeit und vereinfacht auch den termingerechten Rollout neuer Versionen auf allen Plattformen.

Adobe als Flaschenhals

Naturgemäß ist man als Nutzer einer proprietären Technologie den Launen und dem Gutdünken des Bereitstellers, in diesem Falle Adobe, relativ schutzlos ausgeliefert. Gibt es in der verwendeten »Black Box« einen Bug, kann man oft nicht mehr tun, als zu betteln, dass er behoben wird. Bis dahin muss man sich mit Workarounds herumschlagen. Angesichts einiger Tickets mit mehrjähriger Geschichte und seitenlanger unbeantworteter »please fix this!«-Threads scheint blindes Vertrauen, dass Adobe es doch noch irgendwie richten



Während die Elemente der Flash-API weitestgehend automatisch übersetzt werden können, sind bei nicht als Quellcode vorliegenden Drittanbieter-Bibliotheken ein Ersatz auf Haxe- oder Javascript-Ebene sowie etwas Handarbeit erforderlich.

wird, kaum angebracht. Es ist allgemein schwierig bis frustrierend, die Strategie des Konzerns einschätzen zu wollen. So hat Adobe in seinem – zuletzt verschämt in »Animate« umbenannten – grafischen Flash-Entwicklungswerkzeug vor einiger Zeit immerhin die prinzipielle Möglichkeit implementiert, sogenannte HTML5-Projekte zu erzeugen. Doch leider erwies sich die Neuerung, die auf technisch weniger versierte Management-Ebenen kurzzeitig euphorisierend gewirkt haben mag, als Mogelpackung: Keinesfalls kann man damit ein bestehendes Flash-Projekt irgendwie »nach HTML5 bringen«, so wie es sich mancher vielleicht gedacht und gewünscht hätte. Stattdessen lässt sich Animate als sperriges Werkzeug zum Erzeugen animierter Banner in HTML5 nutzen. Darauf hat die Welt der Browsergames aber nun nicht gewartet.

Als nicht ganz unfreiwilliger ActionScript-Entwickler kann es einen regelrecht bedrücken, wie schludrig Adobe mit seiner ehemaligen Marktführerschaft (um nicht zu sagen Monopolstellung) auf dem Gebiet der »Rich Internet Application«-Technologie umgegangen ist. Dass es bis heute keine erkennbaren Bemühungen gibt, dieses arg bröckelnde Standing ins Post-Flash-Zeitalter hinüberzuretten, wirkt von außen betrachtet doch recht befremdlich. Was nur hat Adobe daran gehindert, eine Lösung für den Export von ActionScript-Projekten nach HTML5 in Angriff zu nehmen und damit auch in Zukunft ein überaus attraktives Multiplattform-Werkzeug anzubieten? War wohl nicht so wichtig …

Wie die Gründe auch sein mögen, für uns bei Playa Games stellte der quasi alternativlose Niedergang einer von uns genutzten Kerntechnologie ein zunehmendes Problem dar. Zu dessen Lösung schienen nun zwei grundsätzliche Wege denkbar: entweder eine händische Migration bzw. komplett neue Implementierung der Frontends sämtlicher Spiele in HTML5 bzw. auf einer HTML5 unterstützenden Plattform – Fleißarbeit also; oder aber eine Art Konverter – ActionScript rein, HTML5 raus.

Zeit zu konvertieren!

Bei den Recherchen zu möglichen Wegen der Migration stießen wir rasch auf die relativ junge Sprache Haxe (wird von Google gern mit Eisbein verwechselt, spricht sich aber wohl eher wie »Hex«). Haxe ist eine auf Multiplattform-Entwicklung ausgelegte und syntaktisch mit ActionScript verwandte Sprache, aus der unter anderem JavaScript-, sprich HTML5-Content erzeugt werden kann. Außerdem existiert für Haxe eine umfangreiche Library-Familie namens openfl, die in beeindruckendem Umfang die Flash-API umsetzt.

Es gibt noch einige andere Projekte, die in eine ähnliche Richtung gehen. Ein Beispiel ist CreateJs. Bei openfl ist der Funktionsumfang jedoch besonders fortgeschritten und die API zu größten Teilen mit der von Flash kompatibel.

Nach Abwägung des Aufwands trafen wir die Entscheidung zugunsten von Haxe. Ausschlaggebend waren einerseits der hohe Funktionsumfang von openfl und andererseits die (oberflächliche) syntaktische Ähnlichkeit zwischen ActionScript und Haxe. Anstelle einer händischen Migration, die auch die Aufspaltung des Frontend-Codes aller Games bedeutet hätte, wandten wir uns einer automatischen Übersetzung zu, um möglichst auch weiterhin den gleichen Code nutzen zu können.

Es existierten bereits einige Konverter-Projekte bei Github, die sich in der automatischen Übersetzung von ActionScript nach Haxe versuchten. Diese nahmen wir zunächst voller Hoffnung unter die Lupe. Leider stellten sich die meisten Skripte als relativ tumbe String-Replacer heraus, die der Komplexität eines realen Browsergame-Projekts wie Shakes & Fidget nicht gerecht wurden und schon an einfachen verschachtelten oder verketteten Ausdrücken und Referenzen scheiterten. Selbst die etwas anspruchsvolleren Konverter, die immerhin mit einem Tokenizer arbeiteten, stellten sich in der Praxis als unbrauchbar heraus, weil sie etwa Datentypen oft nicht berücksichtigten und an komplexeren Ausdrücken und Referenzen regelmäßig scheiterten.

Um den eigenen Entwicklungsaufwand zu minimieren, erwogen wir zunächst lediglich eine Art »Vereinfacher« zu entwickeln, den

```
public function hx_s510(hx_s511:String, hx_s512:Float = 1):Int
{
    var hx_s525:Int = 0;
    var hx_s523:Function = null;
    var hx_s521:Function = null;
    var hx_s519:Function = null;
    var hx_s517:Function = null;
    var hx_s516:Object = null;
    var hx_s515:String = null;
    var hx_s514:Dynamic = null;
    var hx_s513:Int = 0;

    hx_s523 = function(hx_s524:ErrorEvent):Void
    {
        hx_s516.timeOutTimer.stop();

        if(Std.is(cast hx_s524, IOErrorEvent))
        {
            hx_s370(cast ('IO Error while attempting to load "' + hx_s516.path + '"'), cast 'MEO_ResourceDefineAudio');

            hx_s516.status = cast Main.hx_s121;
        }
        else if(Std.is(cast hx_s524, SecurityErrorEvent))
        {
            hx_s370(cast ('Sandbox error while attempting to load "' + hx_s516.path + '"'),
                cast 'MEO_ResourceDefineAudio'
            );

            hx_s516.status = cast Main.hx_s122;
        }
        else
        {
            hx_s370(cast ('Unknown error while attempting to load "' + hx_s516.path + '"'),
                cast 'MEO_ResourceDefineAudio'
            );

            hx_s516.status = cast Main.hx_s124;
        }


        hx_s611(cast hx_s525);
    };
    hx_s521 = function(hx_s522:ProgressEvent):Void
    {
        if(hx_s516.sound.isBuffering)
        {
            if(hx_s516.status != Main.hx_s118)
            {
                hx_s373(cast ('Resource "' + hx_s516.path + '" experienced a buffer underrun'),
                    cast 'MEO_ResourceDefineAudio'
                );
            }

            return;
        }
        else if(hx_s516.status != Main.hx_s118)
            return;


        hx_s516.timeOutTimer.stop();

        if(true)
        {
            hx_s516.status = cast Main.hx_s119;
        }
        else
        {
            hx_s370(cast ('Resource "' + hx_s516.path + '" is of an invalid format'), cast 'MEO_ResourceDefineAudio');

            hx_s516.status = cast Main.hx_s123;
        }


        hx_s611(cast hx_s525);
    };
    hx_s519 = function(hx_s520:Event):Void
    {
        if(hx_s516.status != Main.hx_s118)
```

Ein Beispiel aus dem Programmcode von Shakes & Fidget.

man vor einen Konverter »schalten« könnte, um die Syntax sozusagen vorzuverdauen. Unsere Hoffnung war, dass wir auf diesem Wege einen vorhandenen Konverter würden nutzen können und schneller ans Ziel kämen. Von der Idee rückten wir allerdings wieder ab, als wir uns der praktischen Komplexität einer funktional äquivalenten Übersetzung gewahr wurden. Den Weg nach JavaScript über Haxe zu gehen, ist nämlich teilweise eine überraschend knifflige Angelegenheit. Im Gegensatz zu ActionScript ist Haxe zum Beispiel sehr viel strenger typisiert, während JavaScript wiederum so gut wie gar keine Typisierung zulässt.

Um den Vorgang der Übersetzung vollständig kontrollieren zu können und komplexere Zusammenhänge wie Datenstrukturen, Schleifen oder Operationen korrekt zu verarbeiten, begannen wir schließlich mit der Entwicklung eines eigenen, echten Transcompilers, mit all den dazugehörigen Modulen. Es sollte ein aufwändiges und für uns als Spieleentwickler recht ungewöhnliches Projekt werden, aber da es nichts Derartiges zu geben schien, sahen wir keine andere Möglichkeit, als selbst ein brauchbares Werkzeug für unsere Zwecke zu entwickeln. Außerdem reizte uns natürlich auch die Herausforderung, etwas für uns gänzlich neues in Angriff zu nehmen.

Der Teufel steckt im Detail

Wenn man sich Gegenüberstellungen der Haxe- und ActionScript-Syntax ansieht, gewinnt man zunächst den Eindruck, die Sprachen seien sehr eng verwandt. Lediglich die Datentypen heißen ein wenig anders und etwa bei der For-Schleife hat Haxe offenbar geglaubt, das syntaktische Rad neu erfinden zu müssen. Ob es sich bei gewissen Unterschieden um »liebenswerte Besonderheiten« handelt oder um überflüssige Verunstaltungen bewährter syntaktischer Konzepte ist wohl eine Geschmacksfrage. Jedenfalls sieht die Sache auf den ersten flüchtigen Blick gar nicht mal so schwierig aus, auf den zweiten dann schon etwas mehr.

Natürlich steckt der Teufel mal wieder im Detail. Es gibt kleine, feine Unterschiede zwischen ActionScript und Haxe, die beim Übersetzen teils zu ungewöhnlichen Problemen führen. Auf einige davon möchte ich exemplarisch eingehen.

Während man in ActionScript etwa für die Einträge einer Hash Table (Dictionary) keinen Datentyp vorgeben kann, ist dies in Haxe dringend geboten. Denn habe ich beispielsweise ein Dictionary, in dem sich Objekte vom Typ Sprite befinden, gebe als Datentyp in Haxe aber einfach das untypisierte Dictionary<Dynamic> an, so weiß der Haxe-Compiler im Zweifel nicht, mit welchem Element-Datentyp er es zu tun hat. Das führt zu folgendem schwerwiegenden Problem: Möchte ich auf Eigenschaften der Element-Objekte wie x und y zugreifen (die mit Gettern und Settern implementiert sind), so werden diese bei Angabe als Dynamic nicht richtig referenziert. Stattdessen bekomme ich null für x und y bzw. setze anstatt die Setter-Methode aufzurufen eine dynamische Eigenschaft namens x bzw. y, was in diesem Fall auf die Position des Objekts auf dem Container keinerlei Auswirkungen hat.

Dieses Verhalten ist natürlich kaum intuitiv. Es hängt damit zusammen, dass die Getter und Setter intern set_x, set_y, get_x und get_y heißen. Weiß der Haxe-Compiler an einer Stelle, mit welchem Datentyp gearbeitet wird, referenziert er automatisch den korrekten Getter oder Setter anstelle einer gleichnamigen dynamischen Eigenschaft. Weiß er es nicht, dann greift er auf vorhandene oder auch nicht vorhandene dynamische Eigenschaften zu und es tauchen vorerst unerklärliche Fehler auf, bei denen man sich die Haare rauft.

Um eine Typisierung zu erreichen, die über jene der ActionScript-Quelle hinausgeht, ist also ein gewisser Aufwand notwendig. Sicherlich könnte man auch einfach vorschreiben, dass im ActionScript-Code durch Meta Tags zusätzliche Typinformationen vermerkt werden müssen, die der Transcompiler dann in die Haxe-Syntax übernimmt. Dies vorauszusetzen würde jedoch bedeuten, dass nur speziell angepasster Code übersetzbar wäre. Wir wollten die Notwendigkeit händischer Anpassungen im Quellcode aber möglichst vermeiden. Also implementierten wir für die Übersetzung von Arrays und Hash Tables eine interne Protokollierung, welchen Datentyps die jeweils zugewiesenen Elemente sind. Ergibt sich dabei eine Eindeutigkeit (beispielsweise werden einer Hash Table nur Objekte vom Typ Sprite zugewiesen), so erzeugt der Transcompiler statt eines Dictionary<Dynamic> automatisch ein Dictionary<Sprite>. Für die Ausnahmefälle, in denen dieses automatische »Erraten« des Element-Datentyps nicht funktioniert, gibt es zusätzlich einen Meta Tag, um doch noch bestimmte Werte zu forcieren.

Eine besondere Gemeinheit hält Haxe beim Handling des Int-Datentyps bereit. Grundsätz-

Clemens an seinem Arbeitsplatz.

2009 wurde Playa Games mit der Vision gegründet, qualitativ hochwertige Mobile- und Browsergames zu entwickeln und zu vertreiben. Heute arbeiten im Hamburger Studio mehr als 50 Menschen daran, diese Vision wahr werden zu lassen.

lich ist Haxe sehr streng mit seinen numerischen Typen. Weise ich etwa das Ergebnis einer Division einer Variablen vom Typ Int zu, so beschwert sich der Compiler mit einem Fehler: »Int should be Float«. Ob man diese Pedanterie vorbildlich findet oder eher störend, hängt vermutlich auch davon ab, wohin man seinen Haxe-Code später übersetzen möchte. Für unseren Zweck wäre es vielleicht hilfreicher gewesen, wenn der Haxe-Compiler geschwiegen und beim JavaScript-Resultat etwa ein Math.floor() angewendet hätte, um den in JavaScript nicht existenten Int-Datentyp zu emulieren. Stattdessen mussten wir unseren Transcompiler anweisen, derartige Situationen zu erkennen und jeweils ein passendes Cast einzufügen. Dabei darf man sich keinesfalls auf das »unsafe cast« von Haxe verlassen, denn das führt im genannten Beispiel dazu, dass der Haxe-Compiler zwar schweigt, auf JavaScript-Ebene aber keinerlei Überprüfung stattfindet. So können plötzlich Float-Werte in eigentlich als Int deklarierten Variablen auftauchen, was besonders in Zusammenhang mit Array-Indizes und generierten Bitmap-Daten zu äußerst irritierenden Folgefehlern führen kann. Das Unsafe Cast« kann an vielen Stellen durchaus nützlich sein, etwa wenn man allgemein eine »Function« als Callback übergeben will, ohne sich um die in Haxe übliche Angabe von Argument- und Rückgabedatentyp in diesem Zusammenhang zu kümmern – Informationen, die man in ActionScript bei der Angabe einer Callback-Funktionsreferenz üblicherweise nicht hat. Unsafe Casts sind aber beileibe kein Werkzeug, um Haxe automatisch »das Richtige« tun zu lassen.

An einigen Stellen wurde es erforderlich, die Struktur des ActionScript-Codes automatisch zu modifizieren. Beispielsweise lassen sich Funktionen, die über ein sogenanntes »rest array« verfügen (also ein Array von weiteren unbenannten Argumenten hinter den ggf. vorhandenen benannten), in Haxe nur relativ umständlich realisieren. Grundsätzlich hat man in Haxe sowieso nur die Wahl zwischen »normalen« benannten Argumenten oder einem solchen Array. Will man beides, muss man tricksen und etwa zu Beginn des Funktions-Codes die ehemals benannten Argumente als lokale Variable deklarieren, deren Inhalt man dann aus dem übergebenen Array »herausshiftet«. Dabei muss selbstverständlich auch beachtet werden, welche ggf. vorhandenen Default-Werte zu setzen sind, falls das Argument an entsprechender Stelle im Array fehlen sollte. Dies für jede Funktion händisch zu machen, wäre wohl kaum eine angenehme Aufgabe, zumal es dabei leicht zu Fehlern kommen dürfte.

Hinzu kommt die Problematik, dass es in vielen Fällen nicht möglich ist, eine Funktionsdeklaration überhaupt als »normale« benannte Funktion beizubehalten. Um das erwähnte »rest array« auf Klassenebene zu unterstützen, ist die Funktionsreferenz beispielsweise an einen Aufruf der PIMethode Reflect.makeVarArgs() zu übergeben. Der Rückgabewert dieser Methode ist dann erst die Referenz auf eine anonyme Funktion, welche die beliebige Zahl von Parametern unterstützt. Um dieser Referenz den Namen der ursprünglichen benannten Funktion zuzuordnen, kann man die Referenz etwa einer entsprechend benannten Variablen vom Type Function zuweisen. Dies ist allerdings im Falle einer Methodendeklaration wiederum kein statischer Vorgang – die Zuweisung der Funktionsdeklaration an die Objektvariable muss dann also von der Klassendeklaration in den Konstruktor der Klasse verlagert werden.

Das Umwandeln einer benannten Funktionsdeklaration in eine anonyme, die man dann einer zuvor deklarierten Variablen entsprechenden Namens mit dem Datentyp Function zuweist, zeigte sich auch bei Unterfunktionen hilfreich. Hauptsächlich deshalb, weil dadurch sichergestellt werden kann, dass sämtliche benutzten Symbole im aktuellen

Scope deklariert werden, bevor sie im Code, inklusive dessen Unterfunktionen, referenziert werden. Haxe erfordert die Deklaration von Symbolen im Gegensatz zu ActionScript in korrekter Reihenfolge, weshalb sich beispielsweise auch zwei direkt mit Namen deklarierte Unterfunktionen in Haxe nicht gegenseitig aufrufen können – die als zweite deklarierte Funktion wäre im Code der ersten jeweils noch nicht bekannt und der Compiler würde dort einen Fehler melden.

Ein Großteil des weiteren Aufwands ist tatsächlich Fleißarbeit, die wir im Falle des Konverters allerdings zum Glück nur einmal machen mussten. So weisen gewisse API-Aufrufe, insbesondere solche, die zu Haxe selbst gehören und nicht zu openfl, eine andere Syntax auf als unter ActionScript. Einige API-Elemente fehlen ganz und müssen durch Helper-Funktionen substituiert werden. An anderen Stellen ermöglichen Helper-Funktionen, auf Object-Datentypen ähnlich zuzugreifen wie auf Hash Tables, oder ActionScript-typische Schreibweisen wie if(obj) funktionsgleich zu übersetzen.

Die Klassenstruktur behalten wir so weit wie möglich bei. Im Falle von Features und Paradigmen, die unter Haxe nicht unterstützt werden, müssen wir uns natürlich hier und dort mit Workarounds begnügen – Haxe kennt eben keine Namespaces, keine Internal Properties, keine globalen Funktionen und erst recht keine versteckten »inner class«-Deklarationen hinter dem Package Body. Hier tricksen wir mit Präfixen und Suffixen, um die originale Sichtbarkeit von Symbolen und Eigenschaften auch in Haxe zu gewährleisten.

Der finale Schritt, das Erzeugen von Haxe-Code aus dem übersetzten Syntaxbaum, ist naturgemäß eher trivial. Es wird darauf geachtet, möglichst lesbaren und ähnlich strukturierten Code zu erzeugen, um bei Bedarf auch auf der Haxe-Ebene debuggen zu können. (Die End-Kompilate des Haxe-Compilers, also in JavaScript, sind leider schon deutlich entfremdet). Auf Dauer sollte Haxe-Debugging selbstverständlich wegfallen, sobald plattformspezifische Kinderkrankheiten des neuen HTML5-Ausspielwegs beseitigt sind. Anpassungen auf dieser Ebene, die man jedes Mal »zwischen den Compilern« vornehmen müsste, sind ausdrücklich nicht erwünscht und sollten auch nicht notwendig sein.

Fazit: Flash geht, ActionScript bleibt!

Unsere Zielsetzung war von Anfang an, ein Werkzeug für den regelmäßigen Einsatz zu erschaffen und nicht bloß für eine einmalige Übersetzung. Der Transcompiler sollte es uns ermöglichen, weiterhin mit unserer ActionScript-Codebasis zu arbeiten und damit alle Plattformen inklusive des Browsers zu bedienen. Dies ist gelungen. Die mithilfe des Transcompilers und Haxe automatisch übersetzte HTML5-Version von Shakes & Fidget ist im September in die Betaphase gegangen. Wir werden sie zunächst im Parallelbetrieb ausrollen und unseren Spielern die Wahl lassen, ob sie die Flash- oder die HTML5-Version nutzen. Sobald die Betaphase abgeschlossen ist, werden wir dann mit der Umstellung auf HTML5 als Standard beginnen. Die Flash-Version wird den Usern als Option auf absehbare Zeit erhalten bleiben. Uns ist wichtig, dass unsere User die Plattform nutzen können, die für sie am besten funktioniert. Mit unseren anderen Projekten werden wir ähnlich verfahren.

Dass Flash nicht der Weisheit letzter Schluss ist, haben auch wir längst eingesehen. HTML5 ist die Gegenwart und Zukunft für Web-Anwendungen, daran gibt es nichts zu rütteln. Auf welchem Weg man am besten dorthin kommt, muss jeder selbst entscheiden. Wir bei Playa Games wollten nicht alles über Bord werfen, sondern unsere bewährte Arbeitsumgebung fit machen für die Zukunft. Dazu haben wir jetzt das geeignete Werkzeug.

Clemens Brandes-Hell

Converter selbst ausprobieren

In Kürze wird man den Flash2HTML5-Konverter auch direkt über eine eigens dafür eingerichtete Website nutzen können: **www.flash2html5.com**

Shakes & Fidget - The Game ist eines von vier Spielen von Playa Games und ist für iOS, Android, Windows 8 Phone sowie Browser erhältlich und zählt über 50 Millionen registrierte Spieler.

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Blue Byte Mainz	key player	Römerpassage 1	55116	Mainz	06131 / 554470	info@related-designs.de
Bongfish		Schönaugasse 8a/2	A-8010	Graz	+43 / 676 / 7822203	info@bongfish.com
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ByteRockers		Schivelbeiner Straße 1	10439	Berlin	030 / 232573390	info@byterockers.de
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Candygun Games		Hamburger Strasße 132	22083	Hamburg	040 / 20947878	
cerasus.media		Rosenthaler Straße 51	10178	Berlin	030 / 802089990	info@cerasus.de
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Chimera Entertainment		Karlstraße 68	80335	München	089 / 210205790	info@chimera-entertainment.com
CipSoft	key player	Prüfeninger Straße 20	93049	Regensburg	0941 / 6308280	kontakt@cipsoft.com
Cliffhanger Productions		Seidengasse 32/NB/7	A-1070	Wien		office@cliffhangerproductions.com
ClockStone STUDIO		Claudiastraße 14	6020	Innsbruck	+43 / 512 / 890377	info@clockstone.com
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East Forge Entertainment		Baumannstr. 3	04229	Leipzig	0341 / 59 403 59	info@eastforge.com
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Envision Entertainment		Binger Straße 38	55218	Ingelheim		info@envision-entertainment.de
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Fancy Bytes		Niederstraße 5	26931	Huntorf	02151 / 3259912	biz@fancy-bytes.de
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Fried Bytes		Papestraße 12	66119	Saarbrücken	0681 / 68819141	info@friedbytes.de
funworld		Photo Play Straße 1	A-4860	Lenzing	+43 / 7662 / 67850	info@photoplay.com
Fusionsphere Systems		Rosenau 8	86551	Aichach	0700 / 38746600	info@fusionsphere.com
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Gameforge		Albert-Nestler-Straße 8	76131	Karlsruhe	0721 / 3548080	info@gameforge.de
gameus		Kufsteinerstraße 40	83064	Raubling	08035 / 6689	info@gameus.de
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Rat King Entertainment		Robert-Franz-Ring 3	06108	Halle	0345 / 6141741	mail@ratking.de
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Realmforge Studios		Hofer Straße 15	81737	München	089 / 55069134	info@realmforgestudios.com
RedMoon Studios		Dieselstrasse 16	86368	Gersthofen	0821 / 45598000	info@redmoonstudios.de
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SAFKAS Development		Schulze-Delitzsch-Straße 39	04315	Leipzig		mail@safkas.de
Sandbox Interactive	key player	Bornholmer Strasse 71	10439	Berlin	030 / 40045181	info@sandbox-interactive.com
Scorpius Forge		Hörvelsinger Weg 29-31	89081	Ulm	0731 / 14410099	info@scorpius-forge.de
Secret Item Games UG		Himbeerenweg 10d	44532	Lünen		info@secret-item-games.com
Serious Games Solutions		August-Bebel-Straße 27	14482	Potsdam	0331 / 23189680	mail@serious-games-solutions.com
Sharkbomb Studios		Durlacher Allee 53	76131	Karlsruhe	0160 / 92502633	contact@sharkbombs.de
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Skunk Brothers		Dieselstraße 12	61191	Rosbach		hello@skunkbrothers.de
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Snapjaw Games		Dieselstrasse 7	50259	Pulheim	02238 / 4785813	info@snapjawgames.com
Snowstep Development		Heinrich-Holtschneider-Weg 76	40489	Düsseldorf	0201 / 17848176	business@snowstep.com
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SpinBottle Games		Weidkamp 3	45355	Essen	0201 / 1789614	info@spinbottlegames.com

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Springwald Software		Alter Eistreff 36	44789	Bochum	0700 / 777464925	info@springwald.de
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stillalive studios		Rosengasse 1	A-6020	Innsbruck	+43 / 650 / 3468942	info@stillalive-studios.com
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Studio Fizbin		Hoferstraße 20	71636	Ludwigsburg	07141 / 9923866	hello@studio-fizbin.de
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symbiCrowd		In der Schleh 27	5224	Eschweiler	0152 / 55878044	apps@symbiCrowd.de
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the Good Evil		Gilbachstraße 22	50672	Köln	0221 / 16894248	hello@thegoodevil.com
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Thoughtfish GmbH		Friedbergstraße 9	14057	Berlin	030 / 692054321	hello@thoughtfish.de
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V-Play		Kolonitzgasse 9/11-14	A-1030	Wien		team@v-play.net
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Aerosoft		Lindberghring 12	33142	Büren	02955 / 760310	info@aerosoft.de
Application Systems Heidelberg		Pleikartsförsterhof 4/1	69124	Heidelberg	06221 / 300002	kontakt@application-systems.de
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dtp entertainment		Goldbekplatz 3-5	22303	Hamburg	040 / 6699100	info@dtp-entertainment.com
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GamesInFlames		Karlstraße 68	80335	München	089 / 210205715	info@gamesinflames.com
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Halycon Media		An der Autobahn 24	23858	Reinfeld	04533 / 61090	infomail@halycon.de
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HitFox Group		Rosenstraße 17	10178	Berlin	030 / 240888200	info@hitfoxgroup.com
IME - Interactive Media & Entertainment GmbH		Lerchenstr. 28A	22767	Hamburg	040 /28472903	
Infernum Productions		Uhlandstraße 175	10719	Berlin	030 / 91201090	contact@infernum.com
InnoGames		Friesenstraße 13	20097	Hamburg	040 / 78893350	info@innogames.de
Intenium		Neuer Pferdemarkt 1	20359	Hamburg	040 / 25494296	info@intenium.de
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McGame.com		Fürstenwall 69	40217	Düsseldorf	0211 / 63550100	support@mcgame.com
Microsoft		Konrad-Zuse-Straße 1	85716	Unterschleißheim	089 / 31760	kunden@microsoft.com
Millform		Kummelenstrasse 20	CH-4104	Oberwil/BL	+41 / 61 / 7220712	werner.sala@millform.ch
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Morphicon Limited		Lindwurmstraße 88	80337	München	089 / 45235460	info@morphicon.de
NBG		Brunnfeld 2-6	93133	Burglengenfeld	09471 / 70170	info@nbg-online.de
Nintendo		Nintendo Center	63760	Grossostheim	06026 / 9500	info@nintendo.de
Nordic Games		Landstraßer Hauptstraße 1/18	A-1030	Wien	+43 / 1 / 2365487-0	office@nordicgames.at
Novitas		Frankfurter Straße 2	38122	Braunschweig	02574 / 9270	kontakt@greenpepper.de
Phenomedia		An der Sandkull 81a	47445	Moers	02327 / 9970	info@phenomedia.com
Playa Games		Alstertor 9	20095	Hamburg	040 / 76793220	info@playa-games.com
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ProSiebenSat.1 Games		Medienallee 6	85774	Unterföhring	089 / 950710	info@sevengames.de
Ravensburger Digital		Kaflerstraße 8	81241	München	089 / 12228180	tellme@ravensburger-digital.com
Reality Twist		Berg-Am-Laim-Straße 64	81673	München	089 / 380129500	mail@reality-twist.com
redspotgames		Postfach 310464	80104	München	089 / 4036370	info@redspotgames.com
Rondomedia		Limitenstraße 64-78	41236	Mönchengladbach	02166 / 618660	info@rondomedia.de
RTL Games		Achnerstraße 1036	50858	Köln	0221 / 4560	entwickler@rtl-interactive.de
Rumble Media		Kriegsstraße 5	76137	Karlsruhe	0721 / 2018020	info@fettspielen.de
S.A.D.		Rötelbachstraße 91	89079	Ulm	07305 / 96290	kontakt@s-a-d.de
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SERU		Industriestraße 8	24589	Nortorf	04392 / 84900	info@seru.de
Sony Computer Entertainment		Frankfurter Straße 233	63263	Neu-Isenburg	06102 / 4330	scee_presscentre@scee.net
Square Enix		Domstraße 17	20095	Hamburg	040 / 30633400	
Take-Two Interactive		Agnesstraße 14	80798	München	089 / 278220	info@take2.de
Thumbr		Pfuelstraße 5	10997	Berlin	030 /300137100	info@thumbr.com
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Tivola Publishing	key player	Oeverseestraße 10-12	22769	Hamburg	040 / 7070063	mail@tivola.de
TopWare Interactive		Rittnertstraße 36	76227	Karlsruhe	0721 / 9151010	info@topware.de
Traffic Captain		Wendenstraße 21b	20097	Hamburg	040 / 23706800	info@trafficcaptain.com
Travian Games		Wilhelm-Wagenfeld-Straße 22	80807	München	089 / 3249150	mail@traviangames.com
Ubisoft	key player	Adlerstraße 74	40211	Düsseldorf	0211 / 338000	info@ubisoft.de
United Soft Media Verlag		Thomas-Wimmer-Ring 11	80539	München	089 / 29088175	info@usm.de
upjers		Hafenstraße 13	96052	Bamberg	0951 / 510908100	mail@upjers.com
YEPS! GmbH		Methweg 22	50823	Köln	0221 / 30191824	kontakt@yeps.de
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BIU.Dev/BIU.Net	key player	Charlottenstraße 62	10117	Berlin	030 / 24087790	info@biu-online.de
FilmFernsehFonds Bayern	key player	Sonnenstraße 21	80331	München	089 / 5446020	filmfoerderung@fff-bayern.de
Film- und Medienstiftung NRW	key player	Kaistrasse 14	40221	Düsseldorf	0211 / 9305000	info@filmstiftung.de
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gamearea FRM		Holzhausenstraße 22	60322	Frankfurt am Main	069 / 94419441	info@gamearea-frm.de
gamecity:Hamburg	key player	Habichtstraße 41	22305	Hamburg	040 / 2270190	info@gamecity-hamburg.de
GAMEplaces		Hanauer Landstraße 126-128	60314	Frankfurt am Main	069 / 21236214	manuela.schiffner@gameplaces.de
games.net berlinbrandenburg	key player	Ackerstraße 3A	10115	Berlin	030 / 24628570	games.net@medianet-bb.de
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Hessen-IT		Abraham-Lincoln-Straße 38 - 42	65189	Wiesbaden	0611 / 7748481	info@hessen-it.de
Leipzig eSports e.V.		Postfach 30 15 07	04257	Leipzig	0157 / 54 35 9223	info@leipzigesports.de
medienboard berlin-brandenburg		August-Bebel-Straße 26-53	14482	Potsdam-Babelsberg	0331 / 743870	info@medienboard.de
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Mitteldeutsche Medienförderung	key player	Hainstraße 17-19	4109	Leipzig	0341 / 269870	info@mdm-online.de
nordmedia	key player	Expo-Plaza 1	30539	Hannover	0511 / 1234560	info@nordmedia.de
Northstar Developers		Bödekerstr 84	30161	Hannover	0160 / 97880272	d.bruenig@collision-studios.com
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Cologne Game Lab / Fachhochschule Köln		Ubierring 40	50678	Köln	0221 / 82753095	info@colognegamelab.de
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EC Europa Campus		Lyonerstraße 34	60528	Frankfurt am Main	0621 / 8425660	
FH OÖ Studienbetriebs GmbH		Softwarepark 11	A-4232	Hagenberg	+43 (0) 5080420	info@fh-hagenberg.at
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Gesellschaft für Personalentwicklung und Bildung		Beuthstraße 7-8	10117	Berlin	030 / 9339480	gpb-berlin@gpb-berlin.de
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Hochschule Mittweida (FH)		Technikumplatz 17	09648	Mittweida		kontakt@hs-mittweida.de
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mAHS, media Akademie - Hochschule Stuttgart		Tübinger Straße 12-16	70178	Stuttgart	0711 / 925430	info@media-hs.de
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S4G School for Games		Gubener Straße 47	10243	Berlin	030 / 96595244	info@school4games.net
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Anakan (Lokalisation)		Pfuelstraße 5	10997	Berlin	030 / 531420450	ana@anakan.de
Aruba Events	key player	Kreuzstraße 1-3	45468	Mülheim an der Ruhr	0208 / 6982608	infos@aruba-events.de
arvato games task force		Carl-Bertelsmann-Straße 161F	33332	Gütersloh	05241 / 803074	kontakt@gamestaskforce.de
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Die Hobrechts (Game Thinking)		Hobrechtstraße 65	12047	Berlin	030 / 62901232	info@diehobrechts.de
Dr. Behrmann & Härtel Rechtsanwälte		Kantstraße 98	10627	Berlin	030 / 319984910	info@behrmannhaertel.de
Buschbaum Media & PR		Emanuel-Leutze Straße 21	40547	Düsseldorf	0211 / 5988140	presse@buschbaum-media.com
Clans.de (Network)		Pinnasberg 47	20359	Hamburg	040 / 78800990	info@clans.de
Computec Media GmbH	key player	Dr.-Mack-Str. 83	90762	Fürth	0911 / 2872100	info@computec.de
CULTURETRANSLATE		Lyoner Straße 34	60528	Frankfurt am Main	069 / 659998000	info@culturetranslate.de
DELASOCIAL		Christoph-Probst-Weg 31	20251	Hamburg	040 / 87979890	contact@delasocial.com
Digital River		Vogelsanger Straße 78	50823	Köln	0221 / 310 88614	sales@digitalriver.com
Effective Media		Josef-Haumann-Straße 10	44866	Bochum	02327 / 22310	info@effective-media.de
Frankfurter Buchmesse		Reineckstraße 3	60313	Frankfurt am Main	069 / 21020	info@book-fair.com
Freaks 4U Gaming	key player	An der Spreeschanze 10	13599	Berlin	030 / 41719113	info@freaks4u.de
Friedmann Kommunikation		Schanzenstraße 36	51063	Köln	0221 / 5348710	info@fr-k.de
Gärtner PR		Destouchesstraße 68	80796	München	089 / 30766854	info@gaertner-pr.de
gamesbusiness.de	key player	Dr.-Mack-Str. 83	90762	Fürth	0911 / 2872360	thomas.szedlak@computec.de
gamescom	key player	Messeplatz 1	50679	Köln	0221 / 8213894	info@koelnmesse.de
Games Foundation		Neuer Kamp 30	20357	Hamburg		info@gamesfoundation.com
Games Quality		Zum Wasserwerk 15	15537	Erkner	03362 / 885688	info@games-quality.com
Gamify Now!		Karlstraße 68	80335	München	089 / 210205715	info@gamify-now.de
GAMINSIDE		Kaiserstraße 2-4	1070	Wien	+43 / 0676 / 5379776	info@gaminside.com
GAN Game Ad Net		Stresemannstraße 342	22761	Hamburg	040 / 67586750	info@gan-online.com
Ganz & Stock (Personnel Consulting)		Westhafentower, Westhafenplatz	60327	Frankfurt am Main	069 / 710456380	a.stock@ganz-stock.de
GDC Europe	key player	303 Second Street, Suite 900, South Tower	CA 94107	San Francisco	+1 415 / 9476000	info@gdceurope.com
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GRAEF Rechtsanwälte		Jungfrauenthal 8	20149	Hamburg	040 / 80600090	hamburg@graef.eu
HoneyTracks (Game Analytics)		Schelling Straße 35	80799	München	089 / 28723995	info@honeytracks.com
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iVentureCapital		Wendenstraße 21 B	20099	Hamburg	040 / 8081250	info@iventurecapital.com
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Lightning PR		Gundelandstraße 13	60435	Frankfurt		koetting@lightning-pr.de
LOVOO		Prager Straße 10	01069	Dresden	0351 / 41889939	boost@lovoo.net
Making Games	key player	Dr.-Mack-Str. 83	90762	Fürth	0911 / 2872100	info@makinggames.de
Marchsreiter Communications		Guldeinstraße 41a	80339	München	089 / 51919942	dm@marchsreiter.com
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M.I.T. - Media Info Transfer		Albert-Einstein-Ring 8	22761	Hamburg	040 / 30066890	info@mediainfotransfer.de
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paysafecard.com Wertmarken		Am Europlatz 2	1120	Wien	+43 / 1 / 72083800	sales@paysafecard.com
Phénix Noir Productions / Patrick Nevian		Postfach 110136	46121	Oberhausen	0208 / 3042216	info@phenix-noir.de
Pixelworkshop / IG Computergrafik		Hirschengasse 1/26	1060	Wien	+43 / 1 / 5880118698	info@pixelworkshop.at
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remote control productions (Producing)		Sendlinger-Tor-Platz 6	80336	München	089 / 210205700	info@r-control.de
Rode + Mathé (Rechtsberatung)		Henriettenweg 4	20259	Hamburg	040 / 43270432	info@rodemathe.de
ROESSLER PR (Marketing, PR, Consulting)		Walter-Leiske-Straße 2	60320	Frankfurt am Main	069 / 514461	communicate@roesslerpr.de
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SCC (Crossmedia)		Orleansstraße 5a	81669	München	089 / 33094660	info@scc-feld.de
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Selected Minds (Personalberatung)		Walther-Rathenau-Straße 16	64521	Groß-Gerau	06152 / 1871830	info@selected-minds.de
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Sputnic Consulting		Ehrenbergerstr. 11	98693	Ilmenau	03677 7996990	media@sputnic-consulting.com
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TigerTeam Productions		Drachenfelsstr. 14	76767	Hagenbach	0152 / 5173 0000	info@tigerteam-productions.com
Translation-Taxi		Beusselstraße 28	10553	Berlin	030 / 28371428	info@translation-taxi.com
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Two Pi Team		Gerresheimer Straße 9	40721	Hilden	02103 / 9411914	info@two-pi-team.de
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BiteTheBytes (Middleware)	St. Gallener Straße 9	36039 Fulda	0661 / 2006899	info@bitethebytes.com
B.TON Medien (Audio, Musik)	Luise-Ullrich-Straße 4	82031 Grünwald	089 / 189425490	mix@bton.de
Centroid (Motion Capturing)	Schlesische Straße 27	10997 Berlin	030 / 69807474	sven.bergmann@centroidanimation.com
Chromatrix (Mobile Gaming)	Kalkofenstraße 2	72411 Bodelshausen	07471 / 740828	info@chromatrix.com
Codecult (3D-Engine)	Kemnastraße 21a	44866 Bochum	02327 / 35474	info@codecult.com
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Doublesmith (Art/Animation)	Ranzonigasse 3/3	A-3100 St. Pölten	+43 / 699 / 19447880	mail@doublesmith.com
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Tektroop (Support)	Dechenstraße 8	40699 Erkrath		info@tektroop.ch
TON & SPOT audiodesign (Sound)	Immanuelkirchstraße 15	10405 Berlin	030 / 92129727	post@ton-und-spot.de
Toygardens Media (Grafik, Video)	Walderseestraße 54	30163 Hannover	0511 / 33659800	akunze@toygardens.com
VCC Perfect Pictures (Grafik, Video)	Doormannsweg 43	20259 Hamburg	040 / 431690	hamburg@vcc.de
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Virgin Lands (Grafik, Cinematics)	Gneisenaustraße 10/11	97074 Würzburg	0931 / 8049000	info@virgin-lands.com
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Ein Tag bei ...
NCSOFT WEST

An der Rezeption des NCSOFT-Büros in Orange County müssen sich alle Gäste zunächst in eine Liste eintragen, bevor sie den neu betretenen Dungeon erkunden und ihre Quests erledigen dürfen.

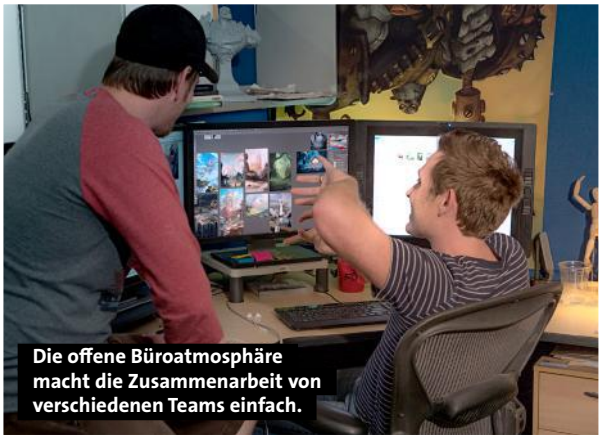
Unterdessen sitzen Kevin Taylor (Head of Marketing) und Simon Cowley (Senior Sales Manager) zusammen und schmieden Pläne, die Weltherrschaft an sich zu reißen.

In den USA gibt es ja beinahe an jeder Ecke eine Starbucks-Filiale. Und auch NCSOFT hat direkt vor der Haustür einen solchen Barista, der dafür sorgt, dass kein Morgen ohne frischen Kaffee zum Mitnehmen enden muss.

Zusammen als Team seine Pause und das Mittagessen zu genießen, ist ein wichtiger Faktor für ein entspanntes Arbeitsklima.

Einige Mitglieder des Web-Development-Teams nutzen eine Pause am Nachmittag für eine Runde des Kartenrollenspiels Munchkin Dungeons.

Alex Wilcox (Senior Desktop Administrator) ist der Herr der Server und sorgt dafür, dass sie reibungslos ihren Dienst verrichten. Denn wenn sie einmal ausfallen, steht die Arbeit still.


Die offene Büroatmosphäre macht die Zusammenarbeit von verschiedenen Teams einfach.

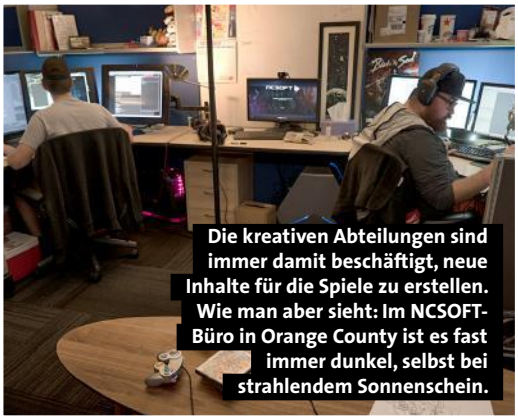
Kein Spiel kommt ohne einen tollen Soundtrack aus. Jeff Kurtenacker (Lead Composer) hat die vielgelobte Musik für WildStar komponiert.

NCSOFT West ist die Abteilung, die alle Aktivitäten von NCSOFT in Europa, dem mittleren Osten, Afrika, Amerika, Australien und Neuseeland steuert. Eine Menge Arbeit, die in Büros in Brighton und Orange County erledigt wird.

Das Community-Team versammelt sich um den Schreibtisch von Bethany Stout (Community Managerin), um ein Content-Update von Blade & Soul zu checken.

Julianne Harty (Brand Managerin für Blade & Soul) und Samuel Cho (Associate Product Manager für Lineage 2 und Aion) gönnen sich mit einer Runde Billard eine kurze Auszeit.

Die NCSOFT-Mitarbeiter haben beim Sommer-Event 2016 im Irvine Boomers! Vergnügungspark sichtlich Spaß.


Die kreativen Abteilungen sind immer damit beschäftigt, neue Inhalte für die Spiele zu erstellen. Wie man aber sieht: Im NCSOFT-Büro in Orange County ist es fast immer dunkel, selbst bei strahlendem Sonnenschein.

Margaret Krohn (Online Video & Content Managerin) hat zwei ihrer Kollegen aus dem Community-Team zu einer Puzzlerunde eingeladen, um fünf Minuten Pause von der Hektik des Alltags zu haben.

Einer der Web-Designer bereitet gerade das Bildmaterial für den Alpha-Test von Master X Master vor, der Ende November stattfand.

Jeden Montag veranstaltet das Büro in Orange County seinen traditionellen Donut Day. Dafür wird jede Woche frisches Gebäck angeliefert.

Dank des sonnigen Wetters in Kalifornien machen die Aktivitäten während des Sommer-Events erst so richtig Spaß.

Dante Fuget (Senior Illustrator), unser Magier am Grafiktablett, erstellt neue Artworks für die Teams.

Unser Community-Team veranstaltet regelmäßig Live-Streams zu Blade & Soul und anderen NCSOFT-Titeln.

Margaret Krohn (Online Video & Content Managerin) und Linda Tsoi (Senior Community Managerin) sind konzentriert bei der Sache, um eine Präsentation freizugeben.

Immer wieder finden auch Meetings zwischen NCSOFT Korea und NCSOFT West statt, hier zum Beispiel werden die Updates und Inhalte der Titel für 2017 geplant.

Das nächste Heft

Making Games 01-02/17

MAKING GAMES VORSCHAU

03-04|17 MAKINGGAMES | ERSCHEINT AM 17. FEBRUAR 2017

Erfolgsrezept Indie Games?

Das Schlagwort »Indie« geistert seit einigen Jahren durch die Branche und so einfach wie heute war es wohl nie, selbst ein Spiel zu entwickeln. So zumindest die Theorie. Und doch kam nach dem großen Indie-Hype schnell die Befürchtung auf, dass viele kleine Entwickler genauso schnell ihre Tore wieder schließen, wie sie sie eröffnet haben. Deshalb schildern einige Studios ihren Weg, erfolgreich ihrem Traum nachzugehen und wie sie nicht nur ihre Projekte durchziehen, sondern auch eine Community aufbauen, Erfolge auf Kickstarter feiern und so weiter.

Weitere Themen

Interview mit Oculus

Jason Rubin, seines Zeichens Head of Content bei Oculus, über aktuelle Entwicklungen und die Zukunft von VR, Oculus sowie der Rift-Brille.

Game Design Case Study

Analyse von verschiedenen Kampfsystemen in Rollenspielen und wie Entwickler diese am besten entwerfen sollten.

Interview zum Thema Lokalisierung

Im Gespräch zeigt der Dienstleister MoGi Group auf, welche Fallstricke bei der Übersetzung von Spielen drohen und welche Sprachen am wichtigsten sind.

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Gemäß der EU-Verordnung Nr. 524/2013 sind wir verpflichtet, darauf hinzuweisen, dass die Europäische Kommission (voraussichtlich ab dem 15.02.2016) unter http://ec.europa.eu/consumers/odr/ eine Plattform zur außergerichtlichen Online-Streitbeilegung (sog. OS-Plattform) betreibt.

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